# GenCore version 5.1.6 Copyright (c) 1993 - 2004 Compugen Ltd.

OM nucleic - nucleic search, using sw model

Run on: June 25, 2004, 06:11:13; Search time 6340.47 Seconds

(without alignments)

13027.239 Million cell updates/sec

Title:

US-10-054-680-1

Perfect score: 2766

Sequence:

1 atggcgtggttaaggttgca.....gctacatcaaggggttctaa 2766

Scoring table: IDENTITY NUC

Gapop 10.0, Gapext 1.0

Searched:

27513289 seqs, 14931090276 residues

Total number of hits satisfying chosen parameters:

55026578

Minimum DB seq length: 0

Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%

Maximum Match 100%

Listing first 45 summaries

Database :

EST:\*

1: em estba:\*

2: em esthum: \*

3: em\_estin:\*

4: em\_estmu:\*

5: em estov:\*

6: em estpl:\*

7: em estro:\*

8: em htc:\*

9: gb est1:\*

10: gb est2:\*

11: gb htc:\*

12: gb est3:\*

13: qb est4:\*

14: qb est5:\*

15: em estfun:\*

16: em\_estom:\*

17: em\_gss\_hum:\*

18: em\_gss\_inv:\*

19: em\_gss\_pln:\*

20: em gss\_vrt:\*

21: em\_gss\_fun:\*

22: em gss mam:\* 23: em\_gss\_mus:\*

24: em gss pro:\*

25: em\_gss\_rod:\*

26: em\_gss\_phg:\*

27: em\_gss\_vrl:\*

28: gb\_gss1:\* 29: gb\_gss2:\*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

### SUMMARIES

						SUMMARIES	
			8				
	ult		Query				
	No.	Score	Match	Length	DB	ID	Description
	1	2627.4	95.0	3186	11	BC036783	BC036783 Homo sapi
	2	1786.4	64.6	1788	29	AY401283	AY401283 Homo sapi
	3	1741.4	63.0	1788	29	AY401284	AY401284 Pan trogl
	4	1624.4	58.7	2534	11	AK044636	AK044636 Mus muscu
	5	1546.4	55.9	1788	29	AY401285	AY401285 Mus muscu
	6	1258.2	45.5	4374	11	AK035163	AK035163 Mus muscu
	7	1208.8	43.7	2922	29	AY398961	AY398961 Homo sapi
	8	1169.8	42.3	2922	29	AY398963	AY398963 Mus muscu
	9	1151.4	41.6	2516	29	AY408693	AY408693 Homo sapi
	10	978.4	35.4	2881	29	AY398962	AY398962 Pan trogl
	11	971	35.1	1589	11	CNSLT11BJ	BX248763 human ful
	12	948.4	34.3	3573	11	AK048160	AK048160 Mus muscu
	13	899.6	32.5	941	13	BX374548	BX374548 BX374548
	14	874.8	31.6	2515	29	AY408695	AY408695 Mus muscu
	15	813.8	29.4	887	12	BI913344	BI913344 603178823
	16	768.2	27.8	939	13	BX347210	BX347210 BX347210
С	17	743.4	26.9	791	12	BI523145	BI523145 603175911
	18	739.8	26.7	792	12	BI522813	BI522813 603175911
	19	737.8	26.7	920	13	BX368185	BX368185 BX368185
	20	708.4	25.6	922	13	BX390204	BX390204 BX390204
	21	698.2	25.2	2472	29	AY408694	AY408694 Pan trogl
	22	673.2	24.3	775	13	BQ770745	BQ770745 UI-M-FI0-
	23	657	23.8	665	13	BQ189572	BQ189572 UI-E-EJ1-
	24	605.4	21.9	704	14	CF729293	CF729293 UI-M-HD0-
	25	598.6	21.6	971	13	BX368184	BX368184 BX368184
	26	574.6	20.8	752	14	CF532853	CF532853 UI-M-GH0-
	27	560.2	20.3	676	10	BB280958	BB280958 BB280958
С	28	553.6	20.0	1062	29	CNS04DXR	AL286344 Tetraodon
	29	516	18.7	527	12	BG910325	BG910325 602805921
	30	503.8	18.2	588	14	CF533347	CF533347 UI-M-FY0-
	31	483.2	17.5	854	13	BX325851	BX325851 BX325851
	32	480	17.4	1055	13	BU116565	BU116565 603138368
	33	452	16.3	717	13	BX501230	BX501230 DKFZp779K
	34	432	15.6	948	13	BU364393	BU364393 603585571
	35	422.8	15.3	684	13	BU363818	BU363818 603788721
	36	416.4	15.1	718	12	BI756778	BI756778 603024449
	37	412.4	14.9	503	28	BZ211245	BZ211245 CH230-426
	38	407.8	14.7	475	10	BF190598	BF190598 237175 MA
С	39	407.4	14.7	499	28	вн349372	BH349372 CH230-32M
	40	405	14.6	641	13	BX502588	BX502588 DKFZp779P
	41	397.2	14.4	911	13	BU901346	BU901346 AGENCOURT
	42	390.2	14.1	597	13	BX502589	BX502589 DKFZp779P
	43	376.8	13.6	694	13	BX854768	BX854768 BX854768
	44	372.8	13.5	3063	11	BC023215	BC023215 Homo sapi
	45	368.4	13.3	1201	13	BX355386	BX355386 BX355386

#### ALIGNMENTS

RESULT 1 BC036783 BC036783 LOCUS 3186 bp mRNA linear HTC 19-NOV-2003 DEFINITION Homo sapiens solute carrier family 8 (sodium-calcium exchanger), member 3, mRNA (cDNA clone IMAGE: 5732743), with apparent retained intron. ACCESSION BC036783 VERSION BC036783.1 GI:23331089 KEYWORDS -HTC. SOURCE Homo sapiens (human) ORGANISM Homo sapiens Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo. (bases 1 to 3186) REFERENCE AUTHORS Strausberg, R.L., Feingold, E.A., Grouse, L.H., Derge, J.G., Klausner, R.D., Collins, F.S., Wagner, L., Shenmen, C.M., Schuler, G.D., Altschul, S.F., Zeeberg, B., Buetow, K.H., Schaefer, C.F., Bhat, N.K., Hopkins, R.F., Jordan, H., Moore, T., Max, S.I., Wang, J., Hsieh, F., Diatchenko, L., Marusina, K., Farmer, A.A., Rubin, G.M., Hong, L., Stapleton, M., Soares, M.B., Bonaldo, M.F., Casavant, T.L., Scheetz, T.E., Brownstein, M.J., Usdin, T.B., Toshiyuki, S., Carninci, P., Prange, C., Raha, S.S., Loquellano, N.A., Peters, G.J., Abramson, R.D., Mullahy, S.J., Bosak, S.A., McEwan, P.J., McKernan, K.J., Malek, J.A., Gunaratne, P.H., Richards, S., Worley, K.C., Hale, S., Garcia, A.M., Gay, L.J., Hulyk, S.W., Villalon, D.K., Muzny, D.M., Sodergren, E.J., Lu, X., Gibbs, R.A., Fahey, J., Helton, E., Ketteman, M., Madan, A., Rodrigues, S., Sanchez, A., Whiting, M., Madan, A., Young, A.C., Shevchenko, Y., Bouffard, G.G., Blakesley, R.W., Touchman, J.W., Green, E.D., Dickson, M.C., Rodriguez, A.C., Grimwood, J., Schmutz, J., Myers, R.M., Butterfield, Y.S., Krzywinski, M.I., Skalska, U., Smailus, D.E., Schnerch, A., Schein, J.E., Jones, S.J. and Marra, M.A. TITLE Generation and initial analysis of more than 15,000 full-length human and mouse cDNA sequences Proc. Natl. Acad. Sci. U.S.A. 99 (26), 16899-16903 (2002) JOURNAL MEDLINE 22388257 PUBMED 12477932 REFERENCE 2 (bases 1 to 3186) AUTHORS Strausberg, R. Direct Submission TITLE JOURNAL Submitted (23-AUG-2002) National Institutes of Health, Mammalian Gene Collection (MGC), Cancer Genomics Office, National Cancer Institute, 31 Center Drive, Room 11A03, Bethesda, MD 20892-2590, REMARK NIH-MGC Project URL: http://mgc.nci.nih.gov COMMENT Contact: MGC help desk Email: cgapbs-r@mail.nih.gov Tissue Procurement: Invitrogen cDNA Library Preparation: Life Technologies, Inc. cDNA Library Arrayed by: The I.M.A.G.E. Consortium (LLNL) DNA Sequencing by: National Institutes of Health Intramural

Sequencing Center (NISC),

```
Web site: http://www.nisc.nih.gov/
          Contact: nisc mgc@nhgri.nih.gov
          Akhter, N., Ayele, K., Beckstrom-Sternberg, S.M., Benjamin, B.,
          Blakesley, R.W., Bouffard, G.G., Breen, K., Brinkley, C., Brooks, S.,
          Dietrich, N.L., Granite, S., Guan, X., Gupta, J., Haghighi, P.,
          Hansen, N., Ho, S.-L., Karlins, E., Kwong, P., Laric, P., Legaspi, R.,
          Maduro, Q.L., Masiello, C., Maskeri, B., Mastrian, S.D., McCloskey, J.C.,
          McDowell, J., Pearson, R., Stantripop, S., Thomas, P.J., Touchman, J.W.,
          Tsurgeon, C., Vogt, J.L., Walker, M.A., Wetherby, K.D., Wiggins, L.,
          Young, A., Zhang, L.-H. and Green, E.D.
          Clone distribution: MGC clone distribution information can be found
          through the I.M.A.G.E. Consortium/LLNL at: http://image.llnl.gov
          Series: IRAK Plate: 79 Row: j Column: 21
          This clone was selected for full length sequencing because it
          passed the following selection criteria: matched mRNA gi: 17865803
          This clone has the following problem: retained intron.
FEATURES
                  Location/Qualifiers
                  1. .3186
    source
                  /organism="Homo sapiens"
                  /mol type="mRNA"
                  /db xref="taxon:9606"
                  /clone="IMAGE: 5732743"
                  /tissue type="Brain, hippocampus"
                  /clone lib="NIH MGC 124"
                  /lab host="DH10B"
                  /note="Vector: pCMV-SPORT6"
ORIGIN
 Query Match
                       95.0%; Score 2627.4; DB 11; Length 3186;
 Best Local Similarity
                      100.0%; Pred. No. 0;
 Matches 2628; Conservative
                             0; Mismatches
                                             1: Indels
                                                         0;
                                                            Gaps
                                                                    0;
          1 ATGGCGTGGTTAAGGTTGCAGCCTCTCACCTCTGCCTTCCTCCATTTTGGGCTGGTTACC 60
Qу
            558 ATGGCGTGGTTAAGGTTGCAGCCTCTCACCTCTGCCTTCCTCCATTTTGGGCTGGTTACC 617
Db
         61 TTTGTGCTCTTCCTGAATGGTCTTCGAGCAGAGGCTGGTGGCTCAGGGGACGTGCCAAGC 120
Qу
            618 TTTGTGCTCTTCCTGAATGGTCTTCGAGCAGAGGCTGGTGGCTCAGGGGACGTGCCAAGC 677
Db
         121 ACAGGGCAGAACAATGAGTCCTGTTCAGGGTCATCGGACTGCAAGGAGGGTGTCATCCTG 180
Qy
            678 ACAGGGCAGAACAATGAGTCCTGTTCAGGGTCATCGGACTGCAAGGAGGGTGTCATCCTG 737
Db
         181 CCAATCTGGTACCCGGAGAACCCTTCCCTTGGGGACAAGATTGCCAGGGTCATTGTCTAT 240
Qy
            738 CCAATCTGGTACCCGGAGAACCCTTCCCTTGGGGACAAGATTGCCAGGGTCATTGTCTAG 797
Db
        241 TTTGTGGCCCTGATATACATGTTCCTTGGGGTGTCCATCATTGCTGACCGCTTCATGGCA 300
QУ
            798 TTTGTGGCCCTGATATACATGTTCCTTGGGGTGTCCATCATTGCTGACCGCTTCATGGCA 857
Db
         301 TCTATTGAAGTCATCACCTCTCAAGAGAGGGAGGTGACAATTAAGAAACCCAATGGAGAA 360
Qу
```

858 TCTATTGAAGTCATCACCTCTCAAGAGAGGGAGGTGACAATTAAGAAACCCAATGGAGAA 917

Db

Gaithersburg, Maryland;

	Qу	361	ACCAGCACACCACTATTCGGGTCTGGAATGAAACTGTCTCCAACCTGACCCTTATGGCC	420
	Db	918	ACCAGCACACCACTATTCGGGTCTGGAATGAAACTGTCTCCAACCTGACCCTTATGGCC	977
	Qу	421	CTGGGTTCCTCTGAGATACTCCTCTCTTTAATTGAGGTGTGTGGTCATGGGTTC	480
Dk	Db	978	$\tt CTGGGTTCCTCTGAGATACTCCTCTTTTAATTGAGGTGTGTGGTCATGGGTTC$	1037
	Qy	481	ATTGCTGGTGATCTGGGACCTTCTACCATTGTAGGGAGTGCAGCCTTCAACATGTTCATC	540
	Db	1038	${\tt ATTGCTGGTGATCTGGGACCTTCTACCATTGTAGGGAGTGCAGCCTTCAACATGTTCATC}$	1097
	Qy ····	541	ATCATTGGCATCTGTGTCTACGTGATCCCAGACGGAGAGATCCAAGCATCTA	600
	Db	1098	ATCATTGGCATCTGTGTCTACGTGATCCCAGACGGAGAGACTCGCAAGATCAAGCATCTA	1157
	QУ	601	CGAGTCTTCTTCATCACCGCTGCTTGGAGTATCTTTGCCTACATCTGGCTCTATATGATT	660
	Db	1158	CGAGTCTTCTTCATCACCGCTGCTTGGAGTATCTTTGCCTACATCTGGCTCTATATGATT	1217
	QУ	661	CTGGCAGTCTTCTCCCCTGGTGTGGTCCAGGTTTGGGAAGGCCTCCTCACTCTTCTTC	720
	Db	1218	$\tt CTGGCAGTCTTCTCCCCTGGTGTGGTCCAGGTTTGGGAAGGCCTCCTCACTCTTCTTCTTCTTCTTCTTCTTCTTCTTCTT$	1277
	Qу	721	TTTCCAGTGTGTCCTTCTGGCCTGGGTGGCAGATAAACGACTGCTCTTCTACAAATAC	780
	Db	1278	${\tt TTTCCAGTGTGTCCTTCTGGCCTGGGTGGCAGATAAACGACTGCTCTTCTACAAATAC}$	1337
	QУ		ATGCACAAAAGTACCGCACAGACAACACCGAGGAATTATCATAGAGACAGAGGGTGAC	
	Db	1338	ATGCACAAAAAGTACCGCACAGACAAACACCGAGGAATTATCATAGAGACAGAGGGTGAC	1397
	Qу	841	CACCCTAAGGGCATTGAGATGGGAAAATGATGAATTCCCATTTTCTAGATGGGAAC	900
	Db	1398	${\tt CACCCTAAGGGCATTGAGATGGGAAAATGATGAATTCCCATTTTCTAGATGGGAAC}$	1457
	QУ	901	CTGGTGCCCCTGGAAGGGAAGGAAGTGGATGAGTCCCGCAGAGAGATGATCCGGATTCTC	960
	Db	1458	CTGGTGCCCCTGGAAGGAAGGAAGTGATGATCCCGCAGAGAGATGATCCCGGATTCTC	1517
	Qу	961	AAGGATCTGAAGCAAAAACACCCAGAGAAGGACTTAGATCAGCTGGTGGAGATGGCCAAT	1020
	Db	1518	AAGGATCTGAAGCAAAAACACCCAGAGAAGGACTTAGATCAGCTGGTGGAGATGGCCAAT	1577
	Qу	1021	TACTATGCTCTTTCCCACCAACAGAAGAGCCGCGCCTTCTACCGTATCCAAGCCACTCGT	1080
	Db	1578	TACTATGCTCTTTCCCACCAACAGAAGAGCCGCGCCTTCTACCGTATCCAAGCCACTCGT	1637
	Qy	1081	ATGATGACTGGTGCAGGCAATATCCTGAAGAAACATGCAGCAGAACAAGCCAAGAAGGCC	1140
	Db	1638	ATGATGACTGGTGCAGGCAATATCCTGAAGAAACATGCAGCAGAACAAGCCAAGAAGGCC	1697
	Qу	1141	TCCAGCATGAGCGAGGTGCACACCGATGAGCCTGAGGACTTTATTTCCAAGGTCTTCTTT	1200
	Db	1698	TCCAGCATGAGCGAGGTGCACACCGATGAGCCTGAGGACTTTATTTCCAAGGTCTTCTTT	1757

Qy	1201	GACCCATGTTCTTACCAGTGCCTGGAGAACTGTGGGGCTGTACTCCTGACAGTGGTGAGG	1260
Db	1758	GACCCATGTTCTTACCAGTGCCTGGAGAACTGTGGGGGCTGTACTCCTGACAGTGGTGAGG	1817
Qу	1261	AAAGGGGGAGACATGTCAAAGACCATGTATGTGGACTACAAAACAGAGGATGGTTCTGCC	1320
Db	1818	AAAGGGGAGACATGTCAAAGACCATGTATGTGGACTACAAAACAGAGGATGGTTCTGCC	1877
Qy	1321	AATGCAGGGGCTGACTATGAGTTCACAGAGGGCACGGTGGTTCTGAAGCCAGGAGAGACC	1380
Db	1878	AATGCAGGGGCTGACTATGAGTTCACAGAGGGCACGGTGGTTCTGAAGCCAGGAGAGACC	1937
Qy	1381	CAGAAGGAGTTCTCCGTGGGCATAATTGATGACGACATTTTTGAGGAGGATGAACACTTC	1440
Db	1938	CAGAAGGAGTTCTCCGTGGGCATAATTGATGACGACATTTTTTGAGGAGGATGAACACTTC	1997
Qу	1441	TTTGTAAGGTTGAGCAATGTCCGCATAGAGGAGGAGCAGCCAGAGGAGGGGGATGCCTCCA	1500
Db	1998	TTTGTAAGGTTGAGCAATGTCCGCATAGAGGAGGAGCAGCCAGAGGAGGAGGGATGCCTCCA	2057
Qу	1501	GCAATATTCAACAGTCTTCCCTTGCCTCGGGCTGTCCTAGCCTCCCCTTGTGTGGCCACA	1560
Db	2058	GCAATATTCAACAGTCTTCCCTTGCCTCGGGCTGTCCTAGCCTCCCCTTGTGTGGCCACA	2117
Qy	1561	GTTACCATCTTGGATGATGACCATGCAGGCATCTTCACTTTTGAATGTGATACTATTCAT	1620
Db	2118	GTTACCATCTTGGATGATGACCATGCAGGCATCTTCACTTTTGAATGTGATACTATTCAT	2177
Qу	1621	GTCAGTGAGAGTATTGGTGTTATGGAGGTCAAGGTTCTGCGGACATCAGGTGCCCGGGGT	1680
Db	2178	GTCAGTGAGAGTATTGGTGTTATGGAGGTCAAGGTTCTGCGGACATCAGGTGCCCGGGGT	2237
Qу	1681	ACAGTCATCGTCCCCTTTAGGACAGTAGAAGGGACAGCCAAGGGTGGCGGTGAGGACTTT	1740
Db	2238	ACAGTCATCGTCCCCTTTAGGACAGTAGAAGGGACAGCCAAGGGTGGCGGTGAGGACTTT	2297
Qу	1741	GAAGACACATATGGGGAGTTGGAATTCAAGAATGATGAAAACTGTGAAAACCATAAGGGTT	1800
Db	2298	GAAGACACATATGGGGAGTTGGAATTCAAGAATGATGAAAACTGTGAAAACCATAAGGGTT	2357
Qу	1801	AAAATAGTAGATGAGGAGGAATACGAAAGGCAAGAGAATTTCTTCATTGCCCTTGGTGAA	1860
Db	2358	AAAATAGTAGATGAGGAGAATACGAAAGGCAAGAGAATTTCTTCATTGCCCTTGGTGAA	2417
Qy	1861	CCGAAATGGATGGAACGTGGAATATCAGATGTGACAGACA	1920
Db	2418	CCGAAATGGATGGAACGTGGAATATCAGATGTGACAGACA	2477
Qу	1921	GAGGAGGCCAAGAGGATAGCAGAGATGGGAAAGCCAGTATTGGGTGAACACCCCAAACTA	1980
Db	2478	GAGGAGGCCAAGAGATAGCAGAGATGGGAAAGCCAGTATTGGGTGAACACCCCAAACTA	2537
Qу	1981	GAAGTCATCATTGAAGAGTCCTATGAGTTCAAGACTACGGTGGACAAACTGATCAAGAAG	2040
Db	2538	GAAGTCATCATTGAAGAGTCCTATGAGTTCAAGACTACGGTGGACAAACTGATCAAGAAG	2597
Qv	2041	ACAAACCTGGCCTTGGTTGTGGGGACCCATTCCTGGAGGGACCAGTTCATGGAGGCCATC	2100

Db	259	
Qу	210	1 ACCGTCAGTGCAGCAGGGGATGAGGATGAGTGAATCCGGGGAGGAGAGGCTGCCCTCC 2160
Db	265	8 ACCGTCAGTGCAGCAGGGGATGAGGATGAGGATGAATCCGGGGAGGAGAGGCTGCCCTCC 2717
Qу	216	1 TGCTTTGACTACGTCATGCACTTCCTGACTGTCTTCTGGAAGGTGCTGTTTGCCTGTGTG 2220
Db	271	8 TGCTTTGACTACGTCATGCACTTCCTGACTGTCTTCTGGAAGGTGCTGTTTGCCTGTGTG 2777
Qу	222	1 CCCCCACAGAGTACTGCCACGGCTGGGCCTGCTTCGCCGTCTCCATCCTCATCATTGGC 2280
Db	277	8 CCCCCACAGAGTACTGCCACGGCTGGGCCTGCTTCGCCGTCTCCATCCTCATCATTGGC 2837
QУ	228	1 ATGCTCACCGCCATCATTGGGGACCTGGCCTCGCACTTCGGCTGCACCATTGGTCTCAAA 2340
Db	283	8 ATGCTCACCGCCATCATTGGGGACCTGGCCTCGCACTTCGGCTGCACCATTGGTCTCAAA 2897
Qу	234	1 GATTCAGTCACAGCTGTTGTTTTCGTGGCATTTGGCACCTCTGTCCCAGATACGTTTGCC 2400
Db	289	8 GATTCAGTCACAGCTGTTGTTTTCGTGGCATTTGGCACCTCTGTCCCAGATACGTTTGCC 2957
QУ	240	1 AGCAAAGCTGCCCCCCCAGGATGTATATGCAGACGCCTCCATTGGCAACGTGACGGGC 2460
Db	295	8 AGCAAAGCTGCTGCCCTCCAGGATGTATATGCAGACGCCTCCATTGGCAACGTGACGGGC 3017
Qy	246	AGCAACGCCGTCAATGTCTTCCTGGGCATCGGCCTGGCCTGGTCCGTGGCCGCCATCTAC 2520
Db	301	.8 AGCAACGCCGTCAATGTCTTCCTGGGCATCGGCCTGGCCTGGTCCGTGGCCGCCATCTAC 3077
Qy	252	1 TGGGCTCTGCAGGGACAGGAGTTCCACGTGTCGGCCGGCACACTGGCCTTCTCCGTCACC 2580
Db	307	8 TGGGCTCTGCAGGGACAGGAGTTCCACGTGTCGGCCGGCACACTGGCCTTCTCCGTCACC 3137
Qy	258	1 CTCTTCACCATCTTTGCATTTGTCTGCATCAGCGTGCTCTTGTACCGAA 2629
Db	313	8 CTCTTCACCATCTTTGCATTTGTCTGCATCAGCGTGCTCTTGTACCGAA 3186
RESULT 2 AY401283 LOCUS		AY401283 1788 bp DNA linear GSS 15-DEC-2003
DEFINITI	ON	Homo sapiens SLC8A3 gene, VIRTUAL TRANSCRIPT, partial sequence, genomic survey sequence.
ACCESSIO VERSION KEYWORDS SOURCE ORGANI		AY401283 AY401283.1 GI:39757272 GSS. Homo sapiens (human) Homo sapiens Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
REFERENC	E	Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.  1 (bases 1 to 1788)
AUTHOR	S	Clark, A.G., Glanowski, S., Nielson, R., Thomas, P., Kejariwal, A., Todd, M.A., Tanenbaum, D.M., Civello, D.R., Lu, F., Murphy, B., Ferriera, S., Wang, G., Zheng, X.H., White, T.J., Sninsky, J.J., Adams, M.D. and Cargill, M.

```
TITLE
          Inferring nonneutral evolution from human-chimp-mouse orthologous
          gene trios
 JOURNAL
          Science 302 (5652), 1960-1963 (2003)
          14671302
  PUBMED
REFERENCE
             (bases 1 to 1788)
          2
 AUTHORS
          Clark, A.G., Glanowski, S., Nielson, R., Thomas, P., Kejariwal, A.,
          Todd, M.A., Tanenbaum, D.M., Civello, D.R., Lu, F., Murphy, B.,
          Ferriera, S., Wang, G., Zheng, X.H., White, T.J., Sninsky, J.J.,
          Adams, M.D. and Cargill, M.
          Direct Submission
 TITLE
  JOURNAL
          Submitted (16-NOV-2003) Celera Genomics, 45 West Gude Drive,
          Rockville, MD 20850, USA
COMMENT
          This sequence was made by sequencing genomic exons and ordering
          them based on alignment.
FEATURES
                 Location/Qualifiers
                  1. .1788
    source
                  /organism="Homo sapiens"
                  /mol type="genomic DNA"
                  /db xref="taxon:9606"
                  <1. .>1788
    gene
                  /gene="SLC8A3"
                  /locus tag="HCM0839"
ORIGIN
 Query Match
                      64.6%;
                            Score 1786.4; DB 29; Length 1788;
 Best Local Similarity
                      99.9%; Pred. No. 0;
 Matches 1787; Conservative
                           0: Mismatches
                                                       0; Gaps
                                           1: Indels
                                                                 0;
          1 ATGGCGTGGTTAAGGTTGCAGCCTCTCACCTCTGCCTTCCTCCATTTTGGGCTGGTTACC 60
Qу
            1 ATGGCGTGGTTAAGGTTGCAGCCTCTCACCTCTGCCTTCCTCCATTTTGGGCTGGTTACC 60
Db
         61 TTTGTGCTCTTCCTGAATGGTCTTCGAGCAGAGGCTGGTGGCTCAGGGGACGTGCCAAGC 120
Qу
            61 TTTGTGCTCTTCCTGAATGGTCTTCGAGCAGAGGCTGGTGGCTCAGGGGACGTGCCAAGC 120
Db
        121 ACAGGGCAGAACAATGAGTCCTGTTCAGGGTCATCGGACTGCAAGGAGGGTGTCATCCTG 180
Qу
            121 ACAGGGCAGAACAATGAGTCCTGTTCAGGGTCATCGGACTGCAAGGAGGGTGTCATCCTG 180
Db
        181 CCAATCTGGTACCCGGAGAACCCTTCCCTTGGGGACAAGATTGCCAGGGTCATTGTCTAT 240
Qу
            181 CCAATCTGGTACCCGGAGAACCCTTCCCTTGGGGACAAGATTGCCAGGGTCATTGTCTAT 240
Db
        241 TTTGTGGCCCTGATATACATGTTCCTTGGGGTGTCCATCATTGCTGACCGCTTCATGGCA 300
Qу
            241 TTTGTGGCCCTGATATACATGTTCCTTGGGGTGTCCATCATTGCTGACCGCTTCATGGCA 300
Db
        301 TCTATTGAAGTCATCACCTCTCAAGAGAGGGGGGGGTGACAATTAAGAAACCCAATGGAGAA 360
Qу
            Db
        301 TCTATTGAAGTCATCACCTCTCAAGAGAGGGAGGTGACAATTAAGAAACCCAATGGAGAA 360
        361 ACCAGCACACCACTATTCGGGTCTGGAATGAAACTGTCTCCAACCTGACCCTTATGGCC 420
Qу
            361 ACCAGCACAACCACTATTCGGGTCTGGAATGAAACTGTCTCCAACCTGACCCTTATGGCC 420
Db
        421 CTGGGTTCCTCTGCTCCTGAGATACTCCTCTTTTAATTGAGGTGTGTGGTCATGGGTTC 480
Qу
```

Db	421		480
Qy	481	ATTGCTGGTGATCTGGGGACCTTCTACCATTGTAGGGAGTGCAGCCTTCAACATGTTCATC	540
Db	481		540
Qу	541	ATCATTGGCATCTGTGTCTACGTGATCCCAGACGGAGAGACTCGCAAGATCAAGCATCTA	600
Db	541		600
Qу	601	CGAGTCTTCTTCATCACCGCTGCTTGGAGTATCTTTGCCTACATCTGGCTCTATATGATT	660
Db	601		-660-
Qу	661	CTGGCAGTCTTCTCCCCTGGTGTGGTCCAGGTTTGGGAAGGCCTCCTCACTCTTCTTC	720
Db	661		720
Qу	721	TTTCCAGTGTGTGTCCTTCTGGCCTGGGTGGCAGATAAACGACTGCTCTTCTACAAATAC	780
Db	721	TTTCCAGTGTGTCCTTCTGGCCTGGGTGGCAGATAAACGACTGCTCTTCTACAAATAC	780
Qy	781	ATGCACAAAAGTACCGCACAGACAAACACCGAGGAATTATCATAGAGACAGAGGGTGAC	840
Db	781	ATGCACAAAAAGTACCGCACAGACAAACACCGAGGAATTATCATAGAGACAGAGGGTGAC	840
Qу	841	CACCCTAAGGGCATTGAGATGGGAAAATGATGAATTCCCATTTTCTAGATGGGAAC	900
Db	841	CACCCTAAGGGCATTGAGATGGGAAAATGATGAATTCCCATTTTCTAGATGGGAAC	900
Qу	901	CTGGTGCCCCTGGAAGGGAAGGAAGTGGATGAGTCCCGCAGAGAGATGATCCGGATTCTC	960
Db	901	CTGGTGCCCCTGGAAGGGAAGGAAGTGGATGAGTCCCGCAGAGAGATGATCCGGATTCTC	960
Qу	961	AAGGATCTGAAGCAAAAACACCCAGAGAAGGACTTAGATCAGCTGGTGGAGATGGCCAAT	1020
Db	961	AAGGATCTGAAGCAAAAACACCCAGAGAAGGACTTAGATCAGCTGGTGGAGATGGCCAAT	1020
Qу	1021	TACTATGCTCTTTCCCACCAACAGAAGAGCCGCGCCTTCTACCGTATCCAAGCCACTCGT	1080
Db	1021	TACTATGCTCTTTCCCACCAACAGAAGAGCCGCGCCTTCTACCGTATCCAAGCCACTCGT	1080
Qу	1081	ATGATGACTGGTGCAGGCAATATCCTGAAGAAACATGCAGCAGAACAAGCCAAGAAGGCC	1140
Db	1081	ATGATGACTGGTGCAGGCAATATCCTGAAGAAACATGCAGCAGAACAAGCCAAGAAGGCC	1140
Qу	1141	TCCAGCATGAGCGAGGTGCACACCGATGAGCCTGAGGACTTTATTTCCAAGGTCTTCTTT	1200
Db	1141	TCCAGCATGAGCGAGGTGCACACCGATGAGCCTGAGGACTTTATTTCCAAGGTCTTCTTT	1200
Qy	1201	GACCCATGTTCTTACCAGTGCCTGGAGAACTGTGGGGGCTGTACTCCTGACAGTGGTGAGG	1260
Db	1201	GACCCATGTTCTTACCAGTGCCTGGAGAACTGTGGGGGCTGTACTCCTGACAGTGGTGAGG	1260
Qу	1261	AAAGGGGGAGACATGTCAAAGACCATGTATGTGGACTACAAAACAGAGGATGGTTCTGCC	

Db	1261	AAAGGGGGAGACATGTCAAAGACCATGTATGTGGACTACAAAACAGAGGATGGTTCTGCC 1320					
Qу	1321	AATGCAGGGGCTGACTATGAGTTCACAGAGGGCACGGTGGTTCTGAAGCCAGGAGAGACC 1380					
Db	1321	AATGCAGGGCTGACTATGAGTTCACAGAGGGCACGGTGGTTCTGAAGCCAGGAGAGACC 1380					
Qу	1381	CAGAAGGAGTTCTCCGTGGGCATAATTGATGACGACATTTTTGAGGAGGATGAACACTTC 1440					
Db	1381	CAGAAGGAGTTCTCCGTGGGCATAATTGATGACGACATTTTTGAGGAGGATGAACACTTC 1440					
QУ	1441	TTTGTAAGGTTGAGCAATGTCCGCATAGAGGAGGAGCAGCCAGAGGAGGGGGATGCCTCCA 1500					
Db	1441	TTTGTAAGGTTGAGCAATGTCCGCATAGAGGAGGAGCAGCCAGAGGAGGAGGGGATGCCTCCA 1500					
Qу	1501	GCAATATTCAACAGTCTTCCCTTGCCTCGGGCTGTCCTAGCCTCCCCTTGTGTGGCCACA 1560					
Db	1501	GCAATATTCAACAGTCTTCCCTTGCCTCGGGCTGTCCTAGCCTCCCCTTGTGTGGCCACA 1560					
QУ	1561	GTTACCATCTTGGATGATGACCATGCAGGCATCTTCACTTTTGAATGTGATACTATTCAT 1620					
Db	1561	GTTACCATCTTGGATGATGACCATGCAGGCATCTTCACTTTTGAATGTGATACTATTCAT 1620					
QУ	1621	GTCAGTGAGAGTATTGGTGTTATGGAGGTCAAGGTTCTGCGGACATCAGGTGCCCGGGGT 1680					
Db	1621	GTCAGTGAGAGTATTGGTGTTATGGAGGTCAAGGTTCTGCGGACATCAGGTGCCCGGGGT 1680					
QУ	1681	ACAGTCATCGTCCCCTTTAGGACAGTAGAAGGGACAGCCAAGGGTGGCGGTGAGGACTTT 1740					
Db	1681	ACAGTCATCGTCCCCTTTAGGACAGTAGAAGGGACAGCCAAGGGTGGCGGTGAGGACTTT 1740					
Qy	1741	GAAGACACATATGGGGAGTTGGAATTCAAGAATGATGAAACTGTGAAA 1788					
Db	1741	GAAGACACATATGGGGAGTTGGAATTCAAGAATGATGAAACTGTGTAA 1788					
RESULT 3 AY401284							
LOCUS DEFINITI	ON P	Y401284 1788 bp DNA linear GSS 15-DEC-2003 an troglodytes SLC8A3 gene, VIRTUAL TRANSCRIPT, partial sequence,					
ACCESSIO		enomic survey sequence. Y401284					
VERSION KEYWORDS		Y401284.1 GI:39757273 SS.					
SOURCE ORGANI		an troglodytes (chimpanzee) an troglodytes					
ONOTHVI	E	ukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; ammalia; Eutheria; Primates; Catarrhini; Hominidae; Pan.					
REFERENC AUTHOR	E 1	(bases 1 to 1788) Clark, A.G., Glanowski, S., Nielson, R., Thomas, P., Kejariwal, A.,					
Author	T F	odd, M.A., Tanenbaum, D.M., Civello, D.R., Lu, F., Murphy, B., Perriera, S., Wang, G., Zheng, X.H., White, T.J., Sninsky, J.J., dams, M.D. and Cargill, M.					
TITLE	I	nferring nonneutral evolution from human-chimp-mouse orthologous ene trios					
JOURNA PUBME	L Š	cience 302 (5652), 1960-1963 (2003) 4671302					
REFERENC							

```
Clark, A.G., Glanowski, S., Nielson, R., Thomas, P., Kejariwal, A.,
 AUTHORS
         Todd, M.A., Tanenbaum, D.M., Civello, D.R., Lu, F., Murphy, B.,
          Ferriera, S., Wang, G., Zheng, X.H., White, T.J., Sninsky, J.J.,
         Adams, M.D. and Cargill, M.
 TITLE
          Direct Submission
          Submitted (16-NOV-2003) Celera Genomics, 45 West Gude Drive,
 JOURNAL
         Rockville, MD 20850, USA
COMMENT
         This sequence was made by sequencing genomic exons and ordering
          them based on alignment.
FEATURES
                 Location/Qualifiers
                 1. .1788
    source
                 /organism="Pan troglodytes"
                 /mol type="genomic DNA"
                 /db xref="taxon:9598"
                 <1. .. >1788
    gene
                 /gene="SLC8A3"
                 /locus tag="HCM0839"
ORIGIN
                                        DB 29; Length 1788;
 Query Match
                     63.0%;
                            Score 1741.4;
 Best Local Similarity
                     97.8%; Pred. No. 0;
                                             Indels
 Matches 1748: Conservative
                           0: Mismatches
                                                               0;
                                         40;
                                                     0;
                                                         Gaps
          1 ATGGCGTGGTTAAGGTTGCAGCCTCTCACCTCTGCCTTCCTCCATTTTGGGCTGGTTACC 60
Οv
           1 ATGGCGTGGTTAAGGTTGCAGCCTCTCACCTCTGCCTTCCTCCATTTTGGGCTGGTTACC 60
Db
Qу
         61 TTTGTGCTCTTCCTGAATGGTCTTCGAGCAGAGGCTGGTGGCTCAGGGGACGTGCCAAGC 120
           61 TTTGTGCTCTTTCTGAATGGTCTTCGAGCAGAGGCTGGTGGCTCAGGGGACGTGCCAAGC 120
Db
        121 ACAGGGCAGAACAATGAGTCCTGTTCAGGGTCATCGGACTGCAAGGAGGGTGTCATCCTG 180
Qу
           121 ACAGGGCAGAACAATGAGTCCTGTTCAGGGTCATCGGACTGCAAGGAGGGTGTCATCCTG 180
Db
        181 CCAATCTGGTACCCGGAGAACCCTTCCCTTGGGGACAAGATTGCCAGGGTCATTGTCTAT 240
Qy
           181 CCAATCTGGTACCCGGAGAACCCTTCCCTTGGGGACAAGATTGCCAGGGTCATTGTCTAT 240
Db
        241 TTTGTGGCCCTGATATACATGTTCCTTGGGGTGTCCATCATTGCTGACCGCTTCATGGCA 300
Qу
           241 TTTGTGGCCCTGATATACATGTTCCTTGGGGTGTCCATCATTGCTGACCGCTTCATGGCG 300
Db
        301 TCTATTGAAGTCATCACCTCTCAAGAGAGGGGGGGGTGACAATTAAGAAACCCAATGGAGAA 360
Qy
           301 TCTATTGAAGTCATCACCTCTCAAGAGGGGGGGGTGACGATTAAGAAACCCAATGGAGAA 360
Db
        361 ACCAGCACAACCACTATTCGGGTCTGGAATGAAACTGTCTCCAACCTGACCCTTATGGCC 420
Qу
           Db
        361 ACCAGCACAACCACTATTCGAGTCTGGAATGAAACTGTCTCCAACCTGACCCTTATGGCC 420
        421 CTGGGTTCCTCTGCTCCTGAGATACTCCTCTCTTTAATTGAGGTGTGTGGTCATGGGTTC 480
Qу
           421 CTGGGTTCCTCTGCTCCTGAGATACTCCTCTCTTTAATTGAGGTGTGTGGTCATGGGTTC 480
Db
        481 ATTGCTGGTGATCTGGGACCTTCTACCATTGTAGGGAGTGCAGCCTTCAACATGTTCATC 540
Qу
```

Db	481	ATTGCTGGTGATCTGGGACCTTCTACCATTGTAGGGAGTGCAGCCTTCAACATGTTCATC	540
Qy	541	ATCATTGGCATCTGTGTCTACGTGATCCCAGACGGAGAGACTCGCAAGATCAAGCATCTA	600
Db	541	ATCATTGGCATCTGTGTCTACGTGATCCCAGACGGAGAGACTCGCAAGATCAAGCACCTA	600
Qу	601	CGAGTCTTCTTCATCACCGCTGCTTGGAGTATCTTTGCCTACATCTGGCTCTATATGATT	660
Db	601	CGAGTCTTCTTCATCACCGCTGCTTGGAGTATCTTTGCCTACATCTGGCTCTATATGATT	660
Qy	661	CTGGCAGTCTTCTCCCCTGGTGTGGTCCAGGTTTGGGAAGGCCTCCTCACTCTTCTTC	720
Db	661	CTGGCAGTCTTCTCCCCTGGTGTGGTCCAGGTTTGGGAAGGCCTCCTCACTCTTCTTC	720
Qу	721	TTTCCAGTGTGTCCTTCTGGCCTGGGTGGCAGATAAACGACTGCTCTTCTACAAATAC	780
Db	721	TTTCCAGTGTGTCCTTCTGGCCTGGGTGGCAGATAAACGACTGCTCTTCTACAAATAC	780
Qу	781	ATGCACAAAAGTACCGCACAGACAACACCGAGGAATTATCATAGAGACAGAGGGTGAC	840
Db	781	ATGCACAAAAAGTACCGCACAGATAAACACCGAGGAATTATCATAGAGACAGAGGGTGAC	840
Qу	841	CACCCTAAGGGCATTGAGATGGGAAAATGATGAATTCCCATTTTCTAGATGGGAAC	900
Db		CACCCTAAGGGCATTGAGATGGGAAAATGATGAATTCCCATTTTCTAGATGGGAAC	
Qу		CTGGTGCCCCTGGAAGGGAAGTGGATGATCCCGCAGAGAGATGATCCCGATTCTC	
Db		CTGGTGCCCCTGGAAGGGAAGTGATGATCCCGCAGAGAGATGATCCCGGATTCTC	
Qy		AAGGATCTGAAGCAAAAACACCCAGAGAAGGACTTAGATCAGCTGGTGGAGATGGCCAAT	
Db		AAGGATCTGAAGCAAAAACACCCAGAGAAGGACTTAGATCAGCTGGTGGAGATGGCTAAT	
Qу		TACTATGCTCTTTCCCACCAACAGAAGAGCCGCGCCTTCTACCGTATCCAAGCCACTCGT	
Db		ATGATGACTGGTGCAGGCAATATCCTGAAGAAACATGCAGCAGAACAAGCCAAGAAGGCC	
Qy Db		ATGATGACTGGTGCAGGCAATATCCTGAAGAAACATGCAGCAGAACAAGCCAAGAAGGCC ATGATGACTGGTGCAGGCAATATCCTGAAGAAACATGCAGCAGAACAAGCCAAGAAGGCC	
Qу		TCCAGCATGAGCGAGGTGCACACCGATGAGCCTGAGGACTTTATTTCCAAGGTCTTCTTT	
Db			
Qy		GACCCATGTTCTTACCAGTGCCTGGAGAACTGTGGGGCTGTACTCCTGACAGTGGTGAGG	
Db			
Qy		AAAGGGGGAGACATGTCAAAGACCATGTATGTGGACTACAAAACAGAGGATGGTTCTGCC	
Db	1261		1320
Qy		AATGCAGGGGCTGACTATGAGTTCACAGAGGGCACGGTGGTTCTGAAGCCAGGAGAGACC	
Db	1321		1380

QУ	138	1 CAGAAGGAGTTCTCCGTGGGCATAATTGATGACGACATTTTTGAGGAGGATGAACACTTC 1440
Db	138	1 CAGAAGGAGTTCTCCGTAGGCATAATTNNNGACGACATTTNNNAGGAGGATGAACACTTN 1440
QУ	144	1 TTTGTAAGGTTGAGCAATGTCCGCATAGAGGAGGAGCAGCCAGAGGAGGGGGATGCCTCCA 1500
Db	144	1 NNNNNAAGGTTGAGCAATGTCCGCATAGAGGAGGAGCAGCCAGAGGAGGAGGATGNCTCCA 1500
QУ	150	1 GCAATATTCAACAGTCTTCCCTTGCCTCGGGCTGTCCTAGCCTCCCCTTGTGTGGCCACA 1560
Db	150	1 GCAATANNCAACAGTNNNNCCTTGCCTCGGGCTGTNNTAGCCTCCCCTTGTGTNGCCACA 1560
Qу	156	1 GTTACCATCTTGGATGATGACCATGCAGGCATCTTCACTTTTGAATGTGATACTATTCAT 1620
Db	156	1 GTTACCATCTTGGATGATGACCATGCAGGCATCTTCACTTTTGAATGTGATACTATTCAT 1620
Qу	162	1 GTCAGTGAGAGTATTGGTGTTATGGAGGTCAAGGTTCTGCGGACATCAGGTGCCCGGGGT 1680
Db	162	1 GTCAGTGAGAGTATTGGTGTTATGGAGGTCAAGGTTCTGCGGACATCAGGTGCCCGGGGT 1680
QУ	168	1 ACAGTCATCGTCCCCTTTAGGACAGTAGAAGGGACAGCCAAGGGTGGCGGTGAGGACTTT 1740
Db	168	1 ACAGTCATCGTCCCCTTTAGGACAGTAGAAGGGACAGCCAAGGGTGGCGGTGAGGACTTT 1740
QУ	174	1 GAAGACACATATGGGGAGTTGGAATTCAAGAATGATGAAACTGTGAAA 1788
Db	174	1 GAAGACACATATGGGGAGTTGGAATTCAAGAATGATGAAACTGTGTAA 1788
RESULT 4 AK044636		
ACCESSION VERSION KEYWORDS SOURCE ORGANI: REFERENCE AUTHOR: TITLE JOURNAL MEDLINE PUBME: REFERENCE	ON  SM  E  S  L  E  D  E	AK044636  2534 bp mRNA linear HTC 20-SEP-2003 Mus musculus adult retina cDNA, RIKEN full-length enriched library, clone:A930029A02 product:solute carrier family 8 (sodium/calcium exchanger), member 3, full insert sequence. AK044636 AK044636.1 GI:26336660 HTC; CAP trapper. Mus musculus (house mouse) Mus musculus Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus. 1 Carninci,P. and Hayashizaki,Y. High-efficiency full-length cDNA cloning Meth. Enzymol. 303, 19-44 (1999) 99279253 10349636 2
ACCESSION VERSION KEYWORDS SOURCE ORGANIS REFERENCE AUTHOR TITLE JOURNA MEDLINE PUBME	ON  SM  E  C  D  E  S  S  S  S  S  S  S  S  S  S  S  S	Mus musculus adult retina cDNA, RIKEN full-length enriched library, clone:A930029A02 product:solute carrier family 8 (sodium/calcium exchanger), member 3, full insert sequence.  AK044636 AK044636.1 GI:26336660 HTC; CAP trapper.  Mus musculus (house mouse)  Mus musculus Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.  1 Carninci,P. and Hayashizaki,Y.  High-efficiency full-length cDNA cloning  Meth. Enzymol. 303, 19-44 (1999)  99279253 10349636

```
REFERENCE
  AUTHORS
            Shibata, K., Itoh, M., Aizawa, K., Nagaoka, S., Sasaki, N., Carninci, P.,
            Konno, H., Akiyama, J., Nishi, K., Kitsunai, T., Tashiro, H., Itoh, M.,
            Sumi, N., Ishii, Y., Nakamura, S., Hazama, M., Nishine, T., Harada, A.,
            Yamamoto, R., Matsumoto, H., Sakaguchi, S., Ikegami, T., Kashiwagi, K.,
            Fujiwake, S., Inoue, K., Togawa, Y., Izawa, M., Ohara, E., Watahiki, M.,
            Yoneda, Y., Ishikawa, T., Ozawa, K., Tanaka, T., Matsuura, S., Kawai, J.,
            Okazaki, Y., Muramatsu, M., Inoue, Y., Kira, A. and Hayashizaki, Y.
            RIKEN integrated sequence analysis (RISA) system--384-format
  TITLE
            sequencing pipeline with 384 multicapillary sequencer
  JOURNAL
            Genome Res. 10 (11), 1757-1771 (2000)
  MEDLINE
            20530913
   PUBMED
            11076861
REFERENCE
  AUTHORS
            The RIKEN Genome Exploration Research Group Phase II Team and the
            FANTOM Consortium.
            Functional annotation of a full-length mouse cDNA collection
  TITLE
  JOURNAL
            Nature 409, 685-690 (2001)
REFERENCE
 AUTHORS
            The FANTOM Consortium and the RIKEN Genome Exploration Research
            Group Phase I & II Team.
  TITLE
            Analysis of the mouse transcriptome based on functional annotation
            of 60,770 full-length cDNAs
            Nature 420, 563-573 (2002)
  JOURNAL
               (bases 1 to 2534)
REFERENCE
 AUTHORS
            Adachi, J., Aizawa, K., Akimura, T., Arakawa, T., Bono, H., Carninci, P.,
            Fukuda, S., Furuno, M., Hanagaki, T., Hara, A., Hashizume, W.,
            Hayashida, K., Hayatsu, N., Hiramoto, K., Hiraoka, T., Hirozane, T.,
            Hori, F., Imotani, K., Ishii, Y., Itoh, M., Kagawa, I., Kasukawa, T.,
            Katoh, H., Kawai, J., Kojima, Y., Kondo, S., Konno, H., Kouda, M.,
            Koya, S., Kurihara, C., Matsuyama, T., Miyazaki, A., Murata, M.,
            Nakamura, M., Nishi, K., Nomura, K., Numazaki, R., Ohno, M., Ohsato, N.,
            Okazaki, Y., Saito, R., Saitoh, H., Sakai, C., Sakai, K., Sakazume, N.,
            Sano, H., Sasaki, D., Shibata, K., Shinagawa, A., Shiraki, T.,
            Sogabe, Y., Tagami, M., Tagawa, A., Takahashi, F., Takaku-Akahira, S.,
            Takeda, Y., Tanaka, T., Tomaru, A., Toya, T., Yasunishi, A.,
            Muramatsu, M. and Hayashizaki, Y.
  TTTLE
            Direct Submission
            Submitted (16-JUL-2001) Yoshihide Hayashizaki, The Institute of
  JOURNAL
            Physical and Chemical Research (RIKEN), Laboratory for Genome
            Exploration Research Group, RIKEN Genomic Sciences Center (GSC),
            RIKEN Yokohama Institute; 1-7-22 Suehiro-cho, Tsurumi-ku, Yokohama,
            Kanagawa 230-0045, Japan (E-mail:genome-res@gsc.riken.go.jp,
            URL: http://genome.gsc.riken.go.jp/, Tel:81-45-503-9222,
            Fax: 81-45-503-9216)
            cDNA library was prepared and sequenced in Mouse Genome
COMMENT
            Encyclopedia Project of Genome Exploration Research Group in Riken
            Genomic Sciences Center and Genome Science Laboratory in RIKEN.
            Division of Experimental Animal Research in Riken contributed to
            prepare mouse tissues.
            Retina RNA was provided by Dr. Stefano Gustincich (Department of
            Neurobiology, Harvard Medical School, 220 Longwood Ave., Boston, MA
            02115, USA) whose assistance is gratefully acknowledged. Please
            visit our web site for further details.
            URL:http://genome.gsc.riken.go.jp/
            URL:http://fantom.gsc.riken.go.jp/.
FEATURES
                     Location/Qualifiers
```

```
1. .2534
source
                /organism="Mus musculus"
                /mol type="mRNA"
                /strain="C57BL/6J"
                /db xref="FANTOM DB:A930029A02"
                /db xref="MGI:2409963"
                /db xref="taxon:10090"
                /clone="A930029A02"
                /tissue type="retina"
                /clone lib="RIKEN full-length enriched mouse cDNA library"
                /dev stage="adult"
CDS
                713. .>2533
                /note="unnamed protein product; putative
                solute carrier family 8 (sodium/calcium exchanger), member
                3 (MGD|MGI:107976, GB|NM_080440, evidence: BLASTN, 99%,
                match=2394)"
                /codon start=1
                /protein id="BAC32013.1"
                /db xref="GI:26336661"
                /translation="MCPVOGRTMSPVRGHOTARRVSFCQLWYPENPSLGDKIARVIVY
                FVALIYMFLGVSIIADRFMASIEVITSQEREVTIKKPNGETSTTTIRVWNETVSNLTL
                MALGSSAPEILLSLIEVCGHGFIAGDLGPSTIVGSAAFNMFIIIGICVYVIPDGETRK
                IKHLRVFFVTAAWSIFAYIWLYMILAVFSPGVVQVWEGLLTLFFFPVCVLLAWVADKR
                LLFYKYMHKKYRTDKHRGIIIETEGDHPKGIEMDGKMMNSHFLDGNFTPLEGKEVDES
                RREMIRILKDLKQKHPEKDLDQLVEMANYYALSHQQKSRAFYRIQATRMMTGAGNILK
                KHAAEQAKKTSSMSEVHTDEPEDFASKVFFDPCSYQCLENCGAVLLTVVRKGGDISKT
                MYVDYKTEDGSANAGADYEFTEGTVVLKPGETQKEFSVGIIDDDIFEEDEHFFVRLSN
                VRVEEEQLAEGMLPAILNSLPLPRAVLASPCVATVTILDDDHAGIFTFECDTIHVSES
                IGVMEVKVLRTSGARGTVIVPFRTVEGTAKGGGEDFEDAYGELEFKNDETVKTIRVKI
                VDEEEYERQENFFIALGEPKWMERGISGVRFFLNQSNSQER"
```

### ORIGIN

	Query Ma Best Loc		Similarity			1624.4; No. 0;	DB 11;	Length	2534;		
			); Conserva			smatches	156;	Indels	2;	Saps	2;
Q:	7	1	ATGGCGTGGTT								59
DÌ	<b>o</b>	603	ATGGCGTGGTT			 TCACCTCTG				 GTTAC	662
Q:	7	60	СТТТСТССТСТ							CCAAG	119
Dl	)	663	TTTTGTGCTCT			 CGAGCAGAG		 ACTCGGGGG		CCAG	722
Q:	7	120	CACAGGGCAGA	ACAATGA	TCCTGT	TCAGGGTCA'	TCGGACT	GCAAGGAGG	GTGTC	ATCCT	179
Dl	<b>)</b>	723	TGCAGGGCAGA			 TCGGGGTCA					782
Q	7	180	GCCAA-TCTGG	TACCCGG	AGAACCC	TTCCCTTGG	GGACAAGA	ATTGCCAGG	GTCATT	GTCT	238
DI		783	GCCAACTCTGG			 TTCCCTTGG					842
Ō,	,	239	ATTTTGTGGCC	CTGATATA	ACATGTT	CCTTGGGGT	GTCCATC <i>I</i>	ATTGCTGAC	CCGCTT	CATGG	298
D)	•	843	ATTTTGTGGCC							   ATGG	902
Q;	<i>!</i>	299	CATCTATTGA	AGT CAT CA	LUTUTCA	AGAGAGGGA	GGTGACAA	ATTAAGAAA	ACCCAA'	GGAG	358

Db	903		962
Qу	359	AAACCAGCACAACCACTATTCGGGTCTGGAATGAAACTGTCTCCAACCTGACCCTTATGG	418
Db	963		1022
Qу	419	CCCTGGGTTCCTCTGAGATACTCCTCTTTTAATTGAGGTGTGTGGTCATGGGT	478
Db	1023	CCCTGGGCTCTTCTGCTCCAGAGATTCTCCTGTCTTTAATTGAGGTGTGTGGTCACGGGT	1082
Qу	479	TCATTGCTGGTGATCTGGGACCTTCTACCATTGTAGGGAGTGCAGCCTTCAACATGTTCA	538
Db	1083	TCATTGCTGGTGATCTGGGACCATCTACCATCGTTGGCAGTGCAGCCTTCAACATGTTCA	1142
Qу	539	TCATCATTGGCATCTGTGTCTACGTGATCCCAGACGGAGAGACTCGCAAGATCAAGCATC	598
Db	1143	TCATCATTGGCATCTGTGTCTATGTGATCCCAGATGGGGAGACTCGAAAGATCAAGCACC	1202
Qу	599	TACGAGTCTTCTTCATCACCGCTGCTTGGAGTATCTTTGCCTACATCTGGCTCTATATGA	658
Db	1203		1262
Qу	659	TTCTGGCAGTCTTCTCCCCTGGTGTGGTCCAGGTTTGGGAAGGCCTCCTCACTCTTCT	718
Db	1263		1322
Qу	719	TCTTTCCAGTGTGTCCTTCTGGCCTGGGTGGCAGATAAACGACTGCTCTTCTACAAAT	778
Db	1323	TCTTTCCCGTGTGTCCTGCTTGGCTGGCAGATAAGCGACTGCTCTTCTACAAAT	1382
Qу	779	ACATGCACAAAAAGTACCGCACAGACAAACACCGAGGAATTATCATAGAGACAGAGGGTG	838
Db	1383	ACATGCACAAAAAATACCGCACAGATAAACACCGAGGAATTATCATTGAGACAGAGGGTG	1442
Qу	839	ACCACCCTAAGGGCATTGAGATGGGAAAATGATGAATTCCCATTTTCTAGATGGGA	898
Db	1443		1502
Qу	899	ACCTGGTGCCCCTGGAAGGGAAGGAAGTGGATGAGTCCCGCAGAGAGATGATCCGGATTC	958
Db	1503		1562
Qу	959	TCAAGGATCTGAAGCAAAAACACCCAGAGAAGGACTTAGATCAGCTGGTGGAGATGGCCA	1018
Db	1563	TAAAGGATCTGAAACAAAAACACCCAGAAAAGGACCTAGATCAGCTGGTGGAGATGGCCA	1622
Qу	1019	ATTACTATGCTCTTTCCCACCAACAGAAGAGCCGCGCCTTCTACCGTATCCAAGCCACTC	1078
Db	1623		1682
Qy	1079	GTATGATGACTGGTGCAGGCAATATCCTGAAGAAACATGCAGCAGAACAAGCCAAGAAGG	1138
Db	1683		1742
Qy	1139	CCTCCAGCATGAGCGAGGTGCACACCGATGAGCCTGAGGACTTTATTTCCAAGGTCTTCT	

Db	1743	CCTCCAGCATGAGCGAGGTGCATACCGATGAGCCGGAGGACTTTGCCTCTAAGGTCTTCT	1802
QУ	1199	TTGACCCATGTTCTTACCAGTGCCTGGAGAACTGTGGGGCTGTACTCCTGACAGTGGTGA	1258
Db	1803	TTGACCCATGTTCTTATCAGTGCCTGGAGAACTGTGGAGCTGTCCTCCTGACCGTGGTGA	1862
QУ	1259	GGAAAGGGGGAGACATGTCAAAGACCATGTATGTGGACTACAAAACAGAGGATGGTTCTG	1318
Db	1863	GGAAAGGGGGAGATATATCCAAGACCATGTACGTGGACTACAAAACAGAGGACGGCTCCG	1922
QУ	1319	CCAATGCAGGGGCTGACTATGAGTTCACAGAGGGCACGGTGGTTCTGAAGCCAGGAGAGA	1378
Db	1923	CCAATGCAGGGGCAGACTATGAGTTCACAGAGGGCACTGTGGTTCTGAAGCCAGGAGAGA	1982
QУ	1379	CCCAGAAGGAGTTCTCCGTGGGCATAATTGATGACGACATTTTTGAGGAGGATGAACACT	1438
Db	1983	CCCAGAAGGAGTTCTCTGTGGGCATCATTGATGATGACATTTTTTGAGGAGGATGAACACT	2042
QУ	1439	TCTTTGTAAGGTTGAGCAATGTCCGCATAGAGGAGGAGGAGCCAGAGGAGGAGGGGATGCCTC	1498
Db	2043	TCTTTGTGAGGCTGAGCAATGTCCGTGTAGAAGAGGAGCAGCTGGCGGAGGGGATGCTCC	2102
QУ	1499	CAGCAATATTCAACAGTCTTCCCTTGCCTCGGGCTGTCCTAGCCTCCCCTTGTGTGGCCA	1558
Db	2103	CAGCAATACTCAATAGTCTTCCTTTGCCTCGGGCTGTCCTGGCCTCCCCTTGTGTGGCCA	2162
QУ	1559	CAGTTACCATCTTGGATGATGACCATGCAGGCATCTTCACTTTTGAATGTGATACTATTC	1618
Db	2163	CAGTAACCATCTTGGATGATGACCATGCAGGAATTTTCACTTTTGAATGTGATACCATTC	2222
Qy	1619	ATGTCAGTGAGAGTATTGGTGTTATGGAGGTCAAGGTTCTGCGGACATCAGGTGCCCGGG	1678
Db	2223	ATGTCAGTGAAAGTATTGGTGTTATGGAAGTCAAGGTTTTGAGGACATCAGGTGCCAGGG	2282
QУ	1679	GTACAGTCATCGTCCCCTTTAGGACAGTAGAAGGGACAGCCAAGGGTGGCGGTGAGGACT	1738
Db	2283	GCACAGTCATCGTCCCTTTTAGGACAGTAGAAGGGACAGCCAAGGGTGGTGGCGAGGACT	2342
QУ	1739	TTGAAGACACATATGGGGAGTTGGAATTCAAGAATGATGAAAACTGTGAAAACCATAAGGG	1798
Db	2343	TTGAAGATGCATATGGGGAGCTGGAGTTCAAGAATGATGAAAACAGTGAAAACCATAAGGG	2402
QУ	1799	TTAAAATAGTAGATGAGGAGGAATACGAAAGGCAAGAGAATTTCTTCATTGCCCTTGGTG	1858
Db	2403	TTAAAATAGTAGATGAGGAGGAGTACGAGAGGCAAGAGAATTTCTTCATTGCCCTTGGTG	2462
QУ	1859	AACCGAAATGGATGGAACGTGGAATATCAGATGTGACA 1896	
Db	2463	AACCGAAATGGATGGAACGTGGAATATCAGGTGTGAGA 2500	

# RESULT 5 AY401285

LOCUS AY401285 1788 bp DNA linear GSS 15-DEC-2003 DEFINITION Mus musculus SLC8A3 gene, VIRTUAL TRANSCRIPT, partial sequence,

genomic survey sequence.

ACCESSION AY401285

```
AY401285.1 GI:39757274
VERSION
KEYWORDS
           GSS.
SOURCE
           Mus musculus (house mouse)
 ORGANISM
           Mus musculus
           Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
           Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
REFERENCE
             (bases 1 to 1788)
 AUTHORS
           Clark, A.G., Glanowski, S., Nielson, R., Thomas, P., Kejariwal, A.,
           Todd, M.A., Tanenbaum, D.M., Civello, D.R., Lu, F., Murphy, B.,
           Ferriera, S., Wang, G., Zheng, X.H., White, T.J., Sninsky, J.J.,
           Adams, M.D. and Cargill, M.
 TITLE
           Inferring nonneutral evolution from human-chimp-mouse orthologous
           gene trios
 JOURNAL
           Science 302 (5652), 1960-1963 (2003)
           14671302
  PUBMED
           2 (bases 1 to 1788)
REFERENCE
           Clark, A.G., Glanowski, S., Nielson, R., Thomas, P., Kejariwal, A.,
 AUTHORS
           Todd, M.A., Tanenbaum, D.M., Civello, D.R., Lu, F., Murphy, B.,
           Ferriera, S., Wang, G., Zheng, X.H., White, T.J., Sninsky, J.J.,
           Adams, M.D. and Cargill, M.
           Direct Submission
 TITLE
 JOURNAL
           Submitted (16-NOV-2003) Celera Genomics, 45 West Gude Drive,
           Rockville, MD 20850, USA
           This sequence was made by sequencing genomic exons and ordering
COMMENT
           them based on alignment.
FEATURES
                   Location/Qualifiers
                   1. .1788
    source
                   /organism="Mus musculus"
                   /mol type="genomic DNA"
                   /db xref="taxon:10090"
                   <1. .>1788
    gene
                   /gene="SLC8A3"
                   /locus tag="HCM0839"
ORIGIN
 Query Match
                        55.9%; Score 1546.4; DB 29; Length 1788;
 Best Local Similarity
                       91.6%; Pred. No. 0;
 Matches 1637; Conservative
                              0; Mismatches 151; Indels
                                                                       0;
                                                            0; Gaps
           1 ATGGCGTGGTTAAGGTTGCAGCCTCTCACCTCTGCCTTCCTCCATTTTGGGCTGGTTACC 60
Qу
             1 ATGGCGTGGTTACGGCTGCAGCCTCTCACCTCTGCCTTCCTCCATTTTGGGCTGGTTACT 60
Db
          61 TTTGTGCTCTTCCTGAATGGTCTTCGAGCAGAGGCTGGTGGCTCAGGGGACGTGCCAAGC 120
Qу
             61 TTTGTGCTCTTCCTGAATTGTCTTCGAGCAGAGGCTGGTGACTCGGGGGATGTGCCCAGT 120
Db
         121 ACAGGGCAGAACAATGAGTCCTGTTCAGGGTCATCGGACTGCAAGGAGGGTGTCATCCTG 180
Qу
              Db
         121 GCAGGGCAGAACAATGAGTCCTGTTCGGGGTCATCAGACTGCAAGGAGGGTGTCATTTTG 180
         181 CCAATCTGGTACCCGGAGAACCCTTCCCTTGGGGACAAGATTGCCAGGGTCATTGTCTAT 240
Qy
             181 CCAATCTGGTATCCAGAGAACCCTTCCCTTGGGGACAAGATTGCCAGGGTCATTGTCTAT 240
Db
         241 TTTGTGGCCCTGATATACATGTTCCTTGGGGTGTCCATCATTGCTGACCGCTTCATGGCA 300
Qу
```

Db	241	TTTGTGGCCCTGATATACATGTTTCTTGGGGTGTCTATCATTGCTGACCGATTCATGGCA	300
Qy	301	TCTATTGAAGTCATCACCTCTCAAGAGAGGGGAGGTGACAATTAAGAAACCCAATGGAGAA	360
Db	301	TCTATTGAAGTCATTACTTCCCAAGAGAGGGAAGTGACCATCAAGAAGCCCAATGGAGAG	360
Qy	361	ACCAGCACAACCACTATTCGGGTCTGGAATGAAACTGTCTCCAACCTGACCCTTATGGCC	420
Db	361	ACCAGCACAACTACAATTCGGGTATGGAATGAAACTGTCTCCAATCTGACCCTGATGGCC	420
Qy	421	CTGGGTTCCTCTGAGATACTCCTCTTTAATTGAGGTGTGTGGTCATGGGTTC	480
Db	421	CTGGGCTCTTCTGCTCCAGAGATTCTCCTGTCTTTAATTGAGGTGTGTGGTCACGGGTTC	480
Qу	481	ATTGCTGGTGATCTGGGACCTTCTACCATTGTAGGGAGTGCAGCCTTCAACATGTTCATC	540
Db	481	ATTGCTGGTGATCTGGGACCATCTACCATCGTTGGCAGTGCAGCCTTCAACATGTTCATC	540
Qy	541	ATCATTGGCATCTGTGTCTACGTGATCCCAGACGGAGAGACTCGCAAGATCAAGCATCTA	600
Db	541	ATCATTGGCATCTGTGTCTATGTGATCCCAGATGGGGAGACTCGAAAGATCAAGCACCTG	600
Qy	601	CGAGTCTTCTTCATCACCGCTGCTTGGAGTATCTTTGCCTACATCTGGCTCTATATGATT	660
Db	601	CGAGTCTTCTTCGTCACGGCTGCTTGGAGCATCTTCGCCTACATTTGGCTCTATATGATC	660
Qy	661	CTGGCAGTCTTCTCCCCTGGTGTGGTCCAGGTTTGGGAAGGCCTCCTCACTCTTCTTC	720
Db	661	CTGGCAGTCTTCTCCTGGTGTGGTCCAGGTTTGGGAAGGCCTCCTTACTCTTCTTC	720
Qy	721	TTTCCAGTGTGTCCTTCTGGCCTGGGTGGCAGATAAACGACTGCTCTTCTACAAATAC	780
Db	721	TTTCCCGTGTGTCCTGCTGGCTTGGGTGGCAGATAAGCGACTGCTCTTCTACAAATAC	780
Qy	781	ATGCACAAAAAGTACCGCACAGACAAACACCGAGGAATTATCATAGAGACAGAGGGTGAC	840
Db	781	ATGCACAAAAATACCGCACAGATAAACACCGAGGAATTATCATTGAGACAGAGGGTGAC	840
Qy	841	CACCCTAAGGGCATTGAGATGGGAAAATGATGAATTCCCATTTTCTAGATGGGAAC	900
Db	841	CACCCTAAGGGCATTGAGATGGGAAAATGATGATTCTCACTTTCTAGATGGGAAC	900
Qy	901	CTGGTGCCCCTGGAAGGGAAGTGGATGATCCCGCAGAGAGATGATCCGGATTCTC	960
Db	901	TTTACACCTTTGGAAGGAAGGAGGTAGATGATCTCGCAGGGAAATGATCCGGATTCTA	960
Qу	961	AAGGATCTGAAGCAAAAACACCCAGAGAAGGACTTAGATCAGCTGGTGGAGATGGCCAAT	1020
Db	961	AAGGATCTGAAACAAAAACACCCAGAAAAGGACCTAGATCAGCTGGTGGAGATGGCCAAT	1020
Qу	1021	TACTATGCTCTTTCCCACCAACAGAAGAGCCGCGCCTTCTACCGTATCCAAGCCACTCGT	1080
Db	1021	TACTATGCTCTTTCCCATCAACAGAAGAGCCGTGCTTTCTACCGCATCCAAGCCACCCGG	1080
Qу	1081	ATGATGACTGGTGCAGGCAATATCCTGAAGAAACATGCAGCAGAACAAGCCAAGAAGGCC	1140
Db	1081	ATGATGACTGGTGCGGGCAATATACTTAAGAAGCATGCAGCCGAGCAAGCCAAGAAGACC	1140

Qу	1141	TCCAGCATGAGCGAGGTGCACACCGATGAGCCTGAGGACTTTATTTCCAAGGTCTTCTTT	1200
Db	1141	TCCAGCATGAGCGAGGTGCATACCGATGAGCCGGAGGACTTTGCCTCTAAGGTCTTCTTT	1200
Qy	1201	GACCCATGTTCTTACCAGTGCCTGGAGAACTGTGGGGCTGTACTCCTGACAGTGGTGAGG	1260
Db	1201	GACCCATGTTCTTATCAGTGCCTGGAGAACTGTGGAGCTGTCCTCCTGACCGTGGTGAGG	1260
Qy	1261	AAAGGGGGAGACATGTCAAAGACCATGTATGTGGACTACAAAACAGAGGATGGTTCTGCC	1320
Db	1261	AAAGGGGGAGATATATCCAAGACCATGTACGTGGACTACAAAACAGAGGACGGCTCCGCC	1320
Qy	1321	AATGCAGGGGCTGACTATGAGTTCACAGAGGGCACGGTGGTTCTGAAGCCAGGAGAGACC	1380
Db	1321	AATGCAGGGGCAGACTATGAGTTCACAGAGGGCACTGTGGTTCTGAAGCCAGGAGAGACC	1380
Qy	1381	CAGAAGGAGTTCTCCGTGGGCATAATTGATGACGACATTTTTGAGGAGGATGAACACTTC	1440
Db	1381	CAGAAGGAGTTCTCTGTGGGCATCATTGATGATGACATTTTTGAGGAGGATGAACACTTC	1440
Qу	1441	TTTGTAAGGTTGAGCAATGTCCGCATAGAGGAGGAGGAGCCAGAGGAGGAGGGGATGCCTCCA	1500
Db	1441	TTTGTGAGGCTGAGCAATGTCCGTGTAGAAGAGGAGCAGCTGGCGGAGGGGATGCTCCCA	1500
Qу	1501	GCAATATTCAACAGTCTTCCCTTGCCTCGGGCTGTCCTAGCCTCCCCTTGTGTGGCCACA	1560
Db	1501	GCAATACTCAATAGTCTTCCTTTGCCTCGGGCTGTCCTGGCCTCCCCTTGTGTGGCCACA	1560
Qy	1561	GTTACCATCTTGGATGATGACCATGCAGGCATCTTCACTTTTGAATGTGATACTATTCAT	1620
Db	1561	GTAACCATCTTGGATGATGACCATGCAGGAATTTTCACTTTTGAATGTGATACCATTCAT	1620
Qу	1621	GTCAGTGAGAGTATTGGTGTTATGGAGGTCAAGGTTCTGCGGACATCAGGTGCCCGGGGT	1680
Db	1621	GTCAGTGAAAGTATTGGTGTTATGGAAGTCAAGGTTTTGAGGACATCAGGTGCCAGGGGC	1680
Qу	1681	ACAGTCATCGTCCCCTTTAGGACAGTAGAAGGGACAGCCAAGGGTGGCGGTGAGGACTTT	1740
Db	1681	ACAGTCATCGTCCCTTTTAGGACAGTAGAAGGGACAGCCAAGGGTGGTGGCGAGGACTTT	1740
Qу	1741	GAAGACACATATGGGGAGTTGGAATTCAAGAATGATGAAACTGTGAAA 1788	
Db	1741	GAAGATGCATATGGGGAGCTGGAGTTCAAGAATGATGAAACAGTGTAA 1788	

### RESULT 6 AK035163

LOCUS AK035163 4374 bp mRNA linear HTC 18-SEP-2003 DEFINITION Mus musculus 12 days embryo embryonic body between diaphragm region and neck cDNA, RIKEN full-length enriched library, clone:9430095C22 product:SODIUM/CALCIUM EXCHANGER 2 PRECURSOR (NA(+)/CA(2+)-EXCHANGE PROTEIN 2) homolog [Rattus norvegicus], full insert sequence.

ACCESSION AK035163

VERSION AK035163.1 GI:26084435

KEYWORDS HTC; CAP trapper.

SOURCE Mus musculus (house mouse)

ORGANISM Mus musculus Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus. REFERENCE AUTHORS Carninci, P. and Hayashizaki, Y. High-efficiency full-length cDNA cloning TITLE Meth. Enzymol. 303, 19-44 (1999) JOURNAL 99279253 MEDLINE 10349636 PUBMED REFERENCE AUTHORS Carninci, P., Shibata, Y., Hayatsu, N., Sugahara, Y., Shibata, K., Itoh, M., Konno, H., Okazaki, Y., Muramatsu, M. and Hayashizaki, Y. Normalization and subtraction of cap-trapper-selected cDNAs to TITLE prepare full-length cDNA libraries for rapid discovery of new genes Genome Res. 10 (10), 1617-1630 (2000) JOURNAL 20499374 MEDLINE PUBMED 11042159 REFERENCE 3 AUTHORS Shibata, K., Itoh, M., Aizawa, K., Nagaoka, S., Sasaki, N., Carninci, P., Konno, H., Akiyama, J., Nishi, K., Kitsunai, T., Tashiro, H., Itoh, M., Sumi, N., Ishii, Y., Nakamura, S., Hazama, M., Nishine, T., Harada, A., Yamamoto, R., Matsumoto, H., Sakaguchi, S., Ikegami, T., Kashiwagi, K., Fujiwake, S., Inoue, K., Togawa, Y., Izawa, M., Ohara, E., Watahiki, M., Yoneda, Y., Ishikawa, T., Ozawa, K., Tanaka, T., Matsuura, S., Kawai, J., Okazaki, Y., Muramatsu, M., Inoue, Y., Kira, A. and Hayashizaki, Y. RIKEN integrated sequence analysis (RISA) system--384-format TITLE sequencing pipeline with 384 multicapillary sequencer JOURNAL Genome Res. 10 (11), 1757-1771 (2000) MEDLINE 20530913 PUBMED 11076861 REFERENCE 4 AUTHORS The RIKEN Genome Exploration Research Group Phase II Team and the FANTOM Consortium. TITLE Functional annotation of a full-length mouse cDNA collection JOURNAL Nature 409, 685-690 (2001) REFERENCE AUTHORS The FANTOM Consortium and the RIKEN Genome Exploration Research Group Phase I & II Team. Analysis of the mouse transcriptome based on functional annotation TITLE of 60,770 full-length cDNAs JOURNAL Nature 420, 563-573 (2002) (bases 1 to 4374) REFERENCE AUTHORS Adachi, J., Aizawa, K., Akimura, T., Arakawa, T., Bono, H., Carninci, P., Fukuda, S., Furuno, M., Hanagaki, T., Hara, A., Hashizume, W., Hayashida, K., Hayatsu, N., Hiramoto, K., Hiraoka, T., Hirozane, T., Hori, F., Imotani, K., Ishii, Y., Itoh, M., Kagawa, I., Kasukawa, T., Katoh, H., Kawai, J., Kojima, Y., Kondo, S., Konno, H., Kouda, M., Koya, S., Kurihara, C., Matsuyama, T., Miyazaki, A., Murata, M., Nakamura, M., Nishi, K., Nomura, K., Numazaki, R., Ohno, M., Ohsato, N., Okazaki, Y., Saito, R., Saitoh, H., Sakai, C., Sakai, K., Sakazume, N., Sano, H., Sasaki, D., Shibata, K., Shinagawa, A., Shiraki, T., Sogabe, Y., Tagami, M., Tagawa, A., Takahashi, F., Takaku-Akahira, S., Takeda, Y., Tanaka, T., Tomaru, A., Toya, T., Yasunishi, A., Muramatsu, M. and Hayashizaki, Y. TITLE Direct Submission Submitted (16-JUL-2001) Yoshihide Hayashizaki, The Institute of **JOURNAL** 

Physical and Chemical Research (RIKEN), Laboratory for Genome

```
Exploration Research Group, RIKEN Genomic Sciences Center (GSC),
          RIKEN Yokohama Institute; 1-7-22 Suehiro-cho, Tsurumi-ku, Yokohama,
          Kanaqawa 230-0045, Japan (E-mail:genome-res@gsc.riken.go.jp,
          URL: http://genome.gsc.riken.go.jp/, Tel:81-45-503-9222,
          Fax:81-45-503-9216)
COMMENT
          cDNA library was prepared and sequenced in Mouse Genome
          Encyclopedia Project of Genome Exploration Research Group in Riken
          Genomic Sciences Center and Genome Science Laboratory in RIKEN.
          Division of Experimental Animal Research in Riken contributed to
          prepare mouse tissues.
          Please visit our web site for further details.
          URL:http://genome.gsc.riken.go.jp/
          URL:http://fantom.gsc.riken.go.jp/.
FEATURES
                  Location/Oualifiers
                  1. .4374
    source
                  /organism="Mus musculus"
                  /mol type="mRNA"
                  /strain="C57BL/6J"
                  /db xref="FANTOM DB:9430095C22"
                  /db xref="MGI:2399390"
                  /db xref="taxon:10090"
                  /clone="9430095C22"
                  /tissue type="embryonic body between diaphragm region and
                  neck"
                  /clone lib="RIKEN full-length enriched mouse cDNA library"
                  /dev stage="12 days embryo"
    misc_feature
                  281. .3046
                  /note="SODIUM/CALCIUM EXCHANGER 2 PRECURSOR
                   (NA(+)/CA(2+)-EXCHANGE PROTEIN 2) homolog [Rattus
                  norvegicus] (SWISSPROT|P48768, evidence: FASTY, 97%ID,
                  100%length, match=2763)
                  putative"
ORIGIN
 Query Match
                       45.5%; Score 1258.2; DB 11; Length 4374;
 Best Local Similarity
                       68.7%; Pred. No. 5.1e-298;
 Matches 1829; Conservative
                             0; Mismatches 783; Indels
                                                         51; Gaps
                                                                     5;
        136 GAGTCCTGTTCAGGGTCATCGGACTGCAAGGAGGGTGTCATCCTGCCAATCTGGTACCCG 195
Qу
                      111
                                 401 GAAGGCTGCCAAGGTTCCTACCGCTGCCAACCAGGTGTGCTGCTGTGTGGGGAACCC 460
Db
         196 GAGAACCCTTCCCTTGGGGACAAGATTGCCAGGGTCATTGTCTATTTTGTGGCCCTGATA 255
Qy
            461 GAGGACCCATCGCTGGGCGACAAGGTTGCACGGGCCGTGGTGTACTTTGTGGCCATGGTC 520
Db
        256 TACATGTTCCTTGGGGTGTCCATCATTGCTGACCGCTTCATGGCATCTATTGAAGTCATC 315
Qy
            521 TACATGTTCCTGGGTGTGTCTATCATTGCCGATCGATTTATGGCATCCATTGAGGTCATC 580
Db
        316 ACCTCTCAAGAGAGGGAGGTGACAATTAAGAAACCCAATGGAGAAACCAGCACAACCACT 375
Qу
            Db
        581 ACATCCAAGGAGAAAGAGATCACCATCACCAAGGCAAATGGGGAGACCAGCGTGGGCACG 640
         376 ATTCGGGTCTGGAATGAAACTGTCTCCAACCTGACCCTTATGGCCCTGGGTTCCTCTGCT 435
Qу
```

641 GTGCGCATCTGGAACGAGACGGTGTCCAACCTTACACTCATGGCCCTGGGCTCCTCAGCG 700

Db

QУ	436	CCTGAGATACTCCTCTTTTAATTGAGGTGTGTGGTCATGGGTTCATTGCTGGTGATCTG	495
Db	701	CCTGAGATTCTGTTGACTGTCATCGAGGTCTGTGGCCACAACTTCCAGGCCGGTGAGCTA	760
QУ	496	GGACCTTCTACCATTGTAGGGAGTGCAGCCTTCAACATGTTCATCATCATTGGCATCTGT	555
Db	761	GGCCCAGGCACCATCGTGGGCAGTGCCGCCTTCAACATGTTTGTGGTCATTGCTGTTTGT	820
QУ	556	GTCTACGTGATCCCAGACGGAGAGACTCGCAAGATCAAGCATCTACGAGTCTTCTTCATC	615
Db	821	GTGTATGTCATCCCGGCTGGCGAGAGCCGTAAGATCAAGCACCTGAGGGTCTTCTTTGTC	880
Qу	616	ACCGCTGCTTGGAGTATCTTTGCCTACATCTGGCTCTATATGATTCTGGCAGTCTTCTCC	675
Db	881	ACAGCCTCCTGGAGCATCTTTGCCTATGTCTGGCTTTATCTCATTCTAGCAGTTTTCTCC	940
QУ	676	CCTGGTGTGGTCCAGGTTTGGGAAGGCCTCCTCACTCTCTTCTTCTTTCCAGTGTGTGT	735
Db	941	CCAGGTGTAGTCCAGGTGTGGGAGGCACTGCTCACACTGATCTTCTTCCCGGTGTGTGT	1000
Qу	736	CTTCTGGCCTGGGTGGCAGATAAACGACTGCTCTTCTACAAATACATGCACAAAAAGTAC	795
Db	1001	GTGTTTGCCTGGATGGCGGACAAGCGACTGCTCTTCTACAAGTACGTGTACAAGCGCTAC	1060
Qу	796	CGCACAGACAAACACCGAGGAATTATCATAGAGACAGAGGGTGACCACCCTAAGGGCATT	855
Db	1061	CGCACCGACCCTCGCAGTGGAATCATCATCGGGGCAGAGGGAGACCCACCC	1120
Qу	856	GAGATGGATGGGAAAATGATGAATTCCCATTTTCTAGATGGGAACCTG	903
Db	1121	GAGCTGGACGCACATTCGTGGGCACTGAGGTCCCTGGCGAGCTGGGCGCATTGGGCACA	1180
Qy .	904	GTGCCCCTGGAAGGAAGTAGATGATCCCGCAGAGAGATGATCCGGATTCTCAAG	963
Db	1181	GGTCCTGCTGAGGCGCGTGAACTAGATGCCAGCCGGCGTGAGGTCATCCAGATCCTTAAG	1240
QУ	964	GATCTGAAGCAAAAACACCCAGAGAAGGACTTAGATCAGCTGGTGGAGATGGCCAATTAC	1023
Db	1241	GACTTGAAGCAGAAGCACCCGGATAAGGACCTGGAGCAGCTGATGGGCATCGCCAAGTAC	1300
Qy	1024	TATGCTCTTTCCCACCAACAGAAGAGCCGCGCCTTCTACCGTATCCAAGCCACTCGTATG	1083
Db	1301	TATGCACTGCTGCACCAGCAGAAGAGCCGCGCCTTCTACCGCATCCAGGCCACGCGGCTG	1360
QУ	1084	ATGACTGGTGCAGGCAATATCCTGAAGAAACATGCAGCAGAACAAGCCAAGAAGGCCTCC	1143
Db	1361	ATGACAGGTGCGGGCAATGTGCTGCGCAGACATGCTGCCGGATGCTGCCCGCAGGCCG	1417
Qу	1144	AGCATGAGCGAGGTGCACACCGATGAGCCTGAGGACTTTATTTCCAAGGTCTTCTTTGAC	1203
Db	1418	GGAGCCACCGATGGTGCCCCCGATGATGAGGACGATGGTGCCAGTCGCATCTTCTTTGAG	1477
Qy	1204	CCATGTTCTTACCAGTGCCTGGAGAACTGTGGGGGCTGTACTCCTGACAGTGGTGAGGAAA	1263
Db	1478	CCCAGCCTCTATCACTGCCTGGAAAACTGCGGGTCAGTGCTGTCCGTGGCTTGCCAG	1537

Qy	1264	GGGGGAGACATGTCAAAGACCATGTATGTGGACTACAAAACAGAGGATGGTTCTGCCAAT	1323
Db	1538	GGCGGTGAGGGCAACAGCACCTTCTACGTGGACTACCGTACCGAGGACGGTTCTGCAAAG	1597
Qy	1324	GCAGGGGCTGACTATGAGTTCACAGAGGGCACGGTGGTTCTGAAGCCAGGAGAGACCCAG	1383
Db	1598	GCAGGCTCCGATTATGAGTACAGCCGAGGGCACGCTGGTGTTCAAGCCCGGGGAGACGCAG	1657
Qy	1384	AAGGAGTTCTCCGTGGGCATAATTGATGACGACATTTTTGAGGAGGATGAACACTTCTTT	1443
Db	1658	${\tt AAGGACCTGCGCATCGGGATCATCGACGACGACATCTTCGAGGAGGATGAGCACTTCTTC}$	1717
 Qy	1444	GTAAGGTTGAGCAATGTCCGCATAGAGGAGGAGCAGCCAGAGGAGGGGGATGCCTCCAGCA	1503
Db	1718	GTGAGGCTGCTGAACCTGCGTGTGGGCGATGCTCAGGGCATGTTCGAG	1765
Qy	1504	ATATTCAACAGTCTTCCCTTGCCTCGGGCTGTCCTAGCCTCCCCTTGTGTGGCCACAGTT	1563
Db	1766	CCCGACGGCGGTGGGCGCCCAAGGGGCGGCTGGTGGCCACTGTC	1822
Qy	1564	ACCATCTTGGATGATGACCATGCAGGCATCTTCACTTTTGAATGTGATACTATTCATGTC	1623
Db	1823	ACCATCCTGGACGACGACGCGGGCATCTTCTCCTTCCAGGACCGCCTGCTGCATGTG	1882
Qy	1624	AGTGAGAGTATTGGTGTTATGGAGGTCAAGGTTCTGCGGACATCAGGTGCCCGGGGTACA	1683
Db	1883		1942
Qy	1684	GTCATCGTCCCCTTTAGGACAGTAGAAGGGACAGCCAAGGGTGGCGGTGAGGACTTTGAA	1743
Db	1943	GTACGCCTCCCCTACCGCACAGTGGACGGCACGGCCCGTGGCGGTGGTGTACATTACGAG	2002
Qу	1744	GACACATATGGGGAGTTGGAATTCAAGAATGATGAAAACTGTGAAAACCATAAGGGTTAAA	1803
Db	2003	GATGCTTGTGGAGAGCTGGAGTTCGGCGATGATGAGACCATGAAAACTCTTCAGGTCAAG	2062
Qу	1804	ATAGTAGATGAGGAGGAATACGAAAGGCAAGAGAATTTCTTCATTGCCCTTGGTGAACCG	1863
Db	2063	ATAGTGGATGAAGAAGAAGAAGAAGAACTTCTTCATTGAGCTGGGCCAGCCC	2122
Qy	1864	AAATGGATGGAACGTGGAATATCAGATGTGACAGACAGGAAG	1905
Db	2123	${\tt CAGTGGCTTAAGCGAGGCATCTCAGCTCTGCTACTCAACCAAGGGAATGGAGACAAGAAGAAGAAGAAGAAGAAGAAGAAGAAGAAGA$	2182
Qy	1906	CTGACTATGGAAGAAGAGGAGGCCAAGAGGATAGCAGAGATGGGAAAGCCAGTATTGGGT	1965
Db	2183	${\tt ATAACTGCAGAGCAGGAGGAGGCCCAGAGGATAGCAGAGATGGGCAAGCCAGTTCTTGGG}$	2242
Qу	1966	GAACACCCCAAACTAGAAGTCATCATTGAAGAGTCCTATGAGTTCAAGACTACGGTGGAC	2025
Db	2243	GAGAACAATCGCCTCGAGGTCATCTAGGAGTCTTATGACTTTAAGAACACGGTGGAT	2302
Qy	2026	AAACTGATCAAGAAGACAAACCTGGCCTTGGTTGTGGGGACCCATTCCTGGAGGGACCAG	2085
Db	2303	AAACTCATAAAGAAAACGAACCTGGCCTTGGTGATTGGGACTCACTC	2362
Qy	2086	TTCATGGAGGCCATCACCGTCAGTGCAGCAGGGGATGAGGATGAGGATGAATCCGGG	2142

Db	2363		2422
Qу	2143	GAGGAGAGGCTGCCTCCTGCTTTGACTACGTCATGCACTTCCTGACTGTCTTCTGGAAG	2202
Db	2423	GAGGAGCGGCTGCCTGCTTTGACTACGTGATGCACTTCCTGACGGTATTCTGGAAA	2482
Qу	2203	GTGCTGTTTGCCTGTGTGCCCCCACAGAGTACTGCCACGGCTGGGCCTGCTTCGCCGTC	2262
Db	2483		2542
Qy	2263	TCCATCCTCATCATTGGCATGCTCACCGCCATCATTGGGGACCTGGCCTCGCACTTCGGC	2322
Db	2543	TGCATCCTGGTCATTGGTGTCTCACTGCCCTCATCGGAGACCTGGCCTCACACTTTGGG	2602
Qу	2323	TGCACCATTGGTCTCAAAGATTCAGTCACAGCTGTTGTTTTCGTGGCATTTGGCACCTCT	2382
Db	2603	TGCACCGTGGGCCTCAAGGACTCAGTCAACGCCGTGGTCTTCGTAGCCCTGGGCACCTCC	2662
Qу	2383	GTCCCAGATACGTTTGCCAGCAAAGCTGCTGCCCTCCAGGATGTATATGCAGACGCCTCC	2442
Db	2663	ATCCCTGACACGTTCGCCAGCAAGGTGGCCGCGCTGCAGGACCAGTGTGCCGACGCGTCC	2722
Qу	2443	ATTGGCAACGTGACGGCAGCAACGCCGTCAATGTCTTCCTGGGCATCGGCCTGGCCTGG	2502
Db	2723	ATCGGTAACGTGACCGGCTCCAATGCGGTGAACGTGTTCCTGGGCCTGGGTGTGGCCTGG	2782
Qу	2503	TCCGTGGCCGCCATCTACTGGGCTCTGCAGGGACAGGAGTTCCACGTGTCGGCCGGC	2562
Db	2783	TCGGTGGCAGCGGTATACTGGGCGGTGCAGGGTCGCCCCTTCGAGGTGCGTGC	2842
Qy	2563	CTGGCCTTCTCCGTCACCCTCTTCACCATCTTTGCATTTGTCTGCATCAGCGTGCTCTTG	2622
Db	2843	CTGGCCTTCTCGGTCACGCTGTTCACCGTCTTCGCCTTCGTGTGCATCGCAGTGCTGTTG	2902
Qy	2623	TACCGAAGGCGGCCGCACCTGGGAGGGGAGCTTGGTGGCCCCCGTGGCTGCAAGCTCGCC	2682
Db	2903	TACCGGCGCCGCAGATTGGCGGCGAGCTGGGCGCCCGCGGGGACCCAAGCTGGCC	2962
Qy	2683	ACAACATGGCTCTTTGTGAGCCTGTGGCTCCTCTACATACTCTTTGCCACACTAGAGGCC	2742
Db	2963	ACCACCGCTCTTCCTGGGCCTCTGGTTCCTCTACATTCTCTTCTCCAGCCTGGAGGCT	3022
Qy	2743	TATTGCTACATCAAGGGGTTCTA 2765	
Db	3023	TACTGCCACATCCGGGGCTTCTA 3045	
ספקוונים 7			

## RESULT 7 AY398961

LOCUS AY398961 2922 bp DNA linear GSS 15-DEC-2003 DEFINITION Homo sapiens SLC8A1 gene, VIRTUAL TRANSCRIPT, partial sequence,

genomic survey sequence.

ACCESSION AY398961

VERSION AY398961.1 GI:39754950

KEYWORDS GSS.

SOURCE Homo sapiens (human)

```
ORGANISM
          Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
          Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
REFERENCE
             (bases 1 to 2922)
          Clark, A.G., Glanowski, S., Nielson, R., Thomas, P., Kejariwal, A.,
 AUTHORS
          Todd, M.A., Tanenbaum, D.M., Civello, D.R., Lu, F., Murphy, B.,
          Ferriera, S., Wang, G., Zheng, X.H., White, T.J., Sninsky, J.J.,
          Adams, M.D. and Cargill, M.
 TITLE
          Inferring nonneutral evolution from human-chimp-mouse orthologous
          gene trios
 JOURNAL
          Science 302 (5652), 1960-1963 (2003)
  PUBMED
          14671302
REFERENCE
          2 (bases 1 to 2922)
 AUTHORS
          Clark, A.G., Glanowski, S., Nielson, R., Thomas, P., Kejariwal, A.,
          Todd, M.A., Tanenbaum, D.M., Civello, D.R., Lu, F., Murphy, B.,
          Ferriera, S., Wang, G., Zheng, X.H., White, T.J., Sninsky, J.J.,
          Adams, M.D. and Cargill, M.
 TITLE
          Direct Submission
 JOURNAL
          Submitted (16-NOV-2003) Celera Genomics, 45 West Gude Drive,
          Rockville, MD 20850, USA
COMMENT
          This sequence was made by sequencing genomic exons and ordering
          them based on alignment.
FEATURES
                  Location/Qualifiers
                   1. .2922
    source
                   /organism="Homo sapiens"
                   /mol type="genomic DNA"
                   /db xref="taxon:9606"
                   <1. .>2922
    gene
                   /gene="SLC8A1"
                   /locus tag="HCM0065"
ORIGIN
 Query Match
                       43.7%; Score 1208.8; DB 29; Length 2922;
 Best Local Similarity
                       66.9%; Pred. No. 6e-286;
 Matches 1887; Conservative
                             0; Mismatches 762; Indels 171; Gaps
                                                                      5;
         109 GACGTGCCAAGCACAGGGCAGAACAATGAGTCCTGTTCAGGGTCATCGGACTGCAAGGAG 168
Qу
                        +111 + 111 + 1
         112 GAAATGGAAGGAGAAGGAAATGAAACTGGTGAATGTACTGGATCATATTACTGTAAGAAA 171
Db
         169 GGTGTCATCCTGCCAATCTGGTACCCGGAGAACCCTTCCCTTGGGGACAAGATTGCCAGG 228
Qу
            172 GGGGTGATTTTGCCCATTTGGGAACCCCAAGACCCTTCTTTTGGGGACAAAATTGCTAGA 231
Db
         229 GTCATTGTCTATTTTGTGGCCCTGATATACATGTTCCTTGGGGTGTCCATCATTGCTGAC 288
Qy
            232 GCTACTGTGTATTTTGTGGCCATGGTCTACATGTTTCTTGGAGTCTCTATCATAGCTGAT 291
Db
         289 CGCTTCATGGCATCTATTGAAGTCATCACCTCTCAAGAGAGGGGAGGTGACAATTAAGAAA 348
Qу
            Db
         292 CGGTTCATGTCCTCTATAGAAGTCATCACATCTCAAGAAAAAGAAATAACCATAAAGAAA 351
         349 CCCAATGGAGAAACCAGCACAACCACTATTCGGGTCTGGAATGAAACTGTCTCCAACCTG 408
Qу
            352 CCCAATGGAGAGACCACCAAGACAACTGTGAGGATCTGGAATGAAACAGTTTCTAACCTG 411
Db
         409 ACCCTTATGGCCCTGGGTTCCTCTGCTCCTGAGATACTCCTCTCTTTAATTGAGGTGTGT 468
Qу
```

Db	412	ACCTTGATGGCCCTGGGATCTTCTGCTCCTGAGATTCTCCTTTCAGTAATTGAAGTGTGT	471
Qу	469	GGTCATGGGTTCATTGCTGGTGATCTGGGGACCTTCTACCATTGTAGGGAGTGCAGCCTTC	528
Db	472	GGCCATAACTTCACTGCAGGAGACCTCGGTCCTAGCACCATCGTGGGAAGTGCTGCATTC	531
Qy	529	AACATGTTCATCATCATTGGCATCTGTGTCTACGTGATCCCAGACGGAGAGACTCGCAAG	588
Db	532	AATATGTTCATCATTATTGCACTCTGTGTTTATGTGGTGCCTGACGGAGACAAGGAAG	591
Qу	589	ATCAAGCATCTACGAGTCTTCTTCATCACCGCTGCTTGGAGTATCTTTGCCTACATCTGG	648
Db	592	ATTAAGÇATTTGCGTGTCTTCTTTGTGACAGCAGCCTGGAGCATCTTTGCCTACACCTGG	651
QУ	649	CTCTATATGATTCTGGCAGTCTTCTCCCCTGGTGTGGTCCAGGTTTGGGAAGGCCTCCTC	708
Db	652	CTTTACATTATTTTGTCTGTCATATCTCCTGGTGTTGTGGAGGTCTGGGAAGGTTTGCTT	711
Qу	709	ACTCTCTTCTTCCAGTGTGTGTCCTTCTGGCCTGGGTGGCAGATAAACGACTGCTC	768
Db	712	ACTTTCTTCTTCCCATCTGTGTTGTGTTCGCTTGGGTAGCGGATAGGAGACTTCTG	771
Qу	769	TTCTACAAATACATGCACAAAAAGTACCGCACAGACAAACACCGAGGAATTATCATAGAG	828
Db	772	TTTTACAAGTATGTCTACAAGAGGTATCGAGCTGGCAAGCAGAGGGGGATGATTATTGAA	831
Qу	829	ACAGAGGGTGACCACCCTAAGGGCATTGAGATGGATGGAAAATGATGAAT	879
Db	832	CATGAAGGACAGGCCATCTTCTAAGACTGAAATTGAAATGGACGGGAAAGTGGTCAAT	891
Qу	880	TCCCATTTCTAGATGGGAACCTGGTGCCCCTGGAAGGGAAG	921
Db	892	TCTCATGTTGAAAATTTCTTAGATGGTGCTCTGGTTCTGGAGGTGGATGAGAGGGACCAA	951
Qy	922	GAAGTGGATGAGTCCCGCAGAGAGATGATCCGGATTCTCAAGGATCTGAAGCAAAAACAC	981
Db	952	GATGATGAAGAAGCTAGGCGAGAAATGGCTAGGATTCTGAAGGAACTTAAGCAGAAGCAT	1011
Qу	982	CCAGAGAAGGACTTAGATCAGCTGGTGGAGATGGCCAATTACTATGCTCTTTCCCACCAA	1041
Db	1012	CCAGATAAAGAAATAGAGCAATTAATAGAATTAGCTAACTACCAAGTCCTAAGTCAGCAG	1071
Qу	1042	CAGAAGAGCCGCGCCTTCTACCGTATCCAAGCCACTCGTATGATGACTGGTGCAGGCAAT	1101
Db	1072	CAAAAAGTAGAGCATTTTATCGCATTCAAGCTACTCGCCTCATGACTGGAGCTGGCAAC	1131
Qу	1102	ATCCTGAAGAAACATGCAGCAGAACAAGCCAAGAAGGCCTCCAGCATGAGCGAGGTGCAC	1161
Db	1132	ATTTTAAAGAGGCATGCAGCTGACCAAGCAAGGAAGGCTGTCAGCATGCACGAGGTCAAC	1191
Qу	1162	ACCGATGAGCCTGAGGACTTTATTTCCAAGGTCTTCTTTGACCCATGTTCTTACCAG	1218
Db	1192	ACTGAAGTGACTGAAAATGACCCTGTTAGTAAGATCTTCTTTGAACAAGGGACATATCAG	1251
Qу	1219	TGCCTGGAGAACTGTGGGGCTGTACTCCTGACAGTGGTGAGGAAAGGGGGAGACATGTCA	1278

Db	1252	TGTCTGGAGAACTGTGGTACTGTGGCCCTTACCATTATCCGCAGAGGTGGTGATTTGACT	1311
Qу	1279	AAGACCATGTATGTGGACTACAAAACAGAGGATGGTTCTGCCAATGCAGGGGCTGACTAT	1338
Db	1312	AACACTGTGTTTGTTGACTTCAGAACAGAGGATGGCACAGCAAATGCTGGGTCTGATTAT	1371
Qу	1339	GAGTTCACAGAGGGCACGGTGGTTCTGAAGCCAGGAGAGCCCAGAAGGAGTTCTCCGTG	1398
Db	1372	GAATTTACTGAAGGAACTGTGGTGTTTAAGCCTGGTGATACCCAGAAGGAAATCAGAGTG	1431
Qу	1399	GGCATAATTGATGACGACATTTTTGAGGAGGATGAACACTTCTTTGTAAGGTTGAGCAAT	1458
Db	1432	GGTATCATAGATGATGATATCTTTGAGGAGGATGAAAATTTCCTTGTGCATCTCAGCAAT	1491
Qу	1459	GTCCGCATAGAGGAGGAGCAGCCAGAGGAGGGGATGCCTCCAGCAATATTCAACAGTCTT	1518
Db	1492	GTCAAAGTATCTTCTGAAGCTTCAGAAGATGGCATACTGGAAGCCAATCAT	1542
Qу	1519	CCCTTGCCTCGGGCTGTCCTAGCCTCCCCTTGTGTGGCCACAGTTACCATCTTGGATGAT	1578
Db	1543	GTTTCTACACTTGCCTCGGATCTCCCTCCACTGCCACTGTAACTATTTTTGATGAT	1602
Qy	1579	GACCATGCAGGCATCTTCACTTTTGAATGTGATACTATTCATGTCAGTGAGAGTATTGGT	1638
Db	1603	GACCACGCAGGCATTTTTACTTTTGAGGAACCTGTGACTCATGTGAGTGA	1662
Qy	1639	GTTATGGAGGTCAAGGTTCTGCGGACATCAGGTGCCCGGGGTACAGTCATCGTCCCCTTT	1698
Db	1663	ATCATGGAGGTGAAAGTATTGAGAACATCTGGAGCTCGAGGAAATGTTATCGTTCCATAT	1722
Qу	1699	AGGACAGTAGAAGGGACAGCCAAGGGTGGCGGTGAGGACTTTGAAGACACATATGGGGAG	1758
Db	1723	AAAACCATCGAAGGACTGCCAGAGGTGGAGGGGGGGGGG	1782
QУ	1759	TTGGAATTCAAGAATGATGAAAACTGTGAAAACCATAAGGGTTAAAATAGTAGATGAGGAG	1818
Db	1783	CTCGAATTCCAGAATGATGAAAATTGTCAAAACAATATCAGTCAAGGTAATTGATGATGAG	1842
Qу	1819	GAATACGAAAGGCAAGAGAATTTCTTCATTGCCCTTGGTGAACCGAAATGGATGG	1875
Db	1843	GAGTATGAGAAAACAAGACCTTCTTCCTTGAGATTGGAGAGCCCCGCCTGGTGGAGATG	1902
QУ	1876		1875
Db	1903	AGTGAGAAGAAGNNNNNNNNNNNNNNNNNNNNNNNNNNN	1962
QУ	1876		1875
Db	1963	NNNNNNGCCAACCTGTCTTCAGGAAGGTTCATGCTAGAGAACATCCGATTCTCTACT	2022
Qу	1876	CGTGGAATATCAGATGTGACAGACAGGAAGCTGACTATGGAAGAAGAGGAG	1926
Db	2023	GTAATCACCATTGCAGACGAATATGATGACAAGCAGCCACTGACCAGCAAAGAGGAAGAG	2082
Qу	1927	GCCAAGAGGATAGCAGAGATGGGAAAGCCAGTATTGGGTGAACACCCCAAACTAGAAGTC	1986
Db	2083	GAGAGGCGCATTGCAGAAATGGGGCGCCCCATCCTGGGAGAGCACACCAAGTTGGAAGTG	2142

Qу	1987	ATCATTGAAGAGTCCTATGAGTTCAAGACTACGGTGGACAAACTGATCAAGAAGACAAAC	2046
Db	2143		2202
Qy	2047	CTGGCCTTGGTTGTGGGGACCCATTCCTGGAGGGACCAGTTCATGGAGGCCATCACCGTC	2106
Db	2203	CTGGCCCTTGTGGTTGGGACTAACAGCTGGAGAGAACAGTTCATTGAAGCTATCACTGTC	2262
Qу	2107	AGTGCAGCAGGGATGAGGATGAGTCCGGGGAGGAGGCTGCCCTCCTGCTTT	2166
Db	2263	AGTGCTGGGGAAGATGATGACGACGATGAATGTGGGGAAGAGAAGCTGCCCTCCTGTTTC	2322
Qy	2167	GACTACGTCATGCACTTCCTGACTGTCTTCTGGAAGGTGCTGTTTGCCTGTGTGCCCCCC	2226
Db	2323	GATTACGTGATGCACTTTCTGACTGTTTCTGGAAGGTCCTGTTTGCCTTCGTCCCCCT	2382
Qу	2227	ACAGAGTACTGCCACGGCTGGGCCTGCTTCGCCGTCTCCATCCTCATCATTGGCATGCTC	2286
Db	2383	ACTGAATACTGGAATGGCTGGGCGTGTTTCATTGTCTCCATCCTCATGATTGGCCTACTG	2442
Qу	2287	ACCGCCATCATTGGGGACCTGGCCTCGCACTTCGGCTGCACCATTGGTCTCAAAGATTCA	2346
Db	2443	ACAGCTTTCATTGGAGACCTGGCTTCCCACTTTGGCTGCACCATTGGCCTGAAAGATTCT	2502
Qу	2347	GTCACAGCTGTTGTTTTCGTGGCATTTGGCACCTCTGTCCCAGATACGTTTGCCAGCAAA	2406
Db	2503	GTGACTGCAGTCGTGTCGCACTTGGAACATCAGTGCCAGACACATTTGCCAGCAAA	2562
QУ	2407	GCTGCTGCCCTCCAGGATGTATATGCAGACGCCTCCATTGGCAACGTGACGGGCAGCAAC	2466
Db	2563	GTGGCAGCCACCCAGGACCAGTATGCAGACGCCTCCATAGGTAACGTCACGGGCAGCAAC	2622
QУ	2467	GCCGTCAATGTCTTCCTGGGCATCGGCCTGGCCTGGTCCGTGGCCGCCATCTACTGGGCT	2526
Db	2623	GCGGTGAATGTCTTCCTGGGAATCGGTGTGGCCTGGTCCATCGCTGCCATCTACCACGCA	2682
Qу		CTGCAGGGACAGGAGTTCCACGTGTCGGCCGGCACACTGGCCTTCTCCGTCACCCTCTTC	
Db	2683	GCCAATGGGGAACAGTTCAAAGTGTCCCCTGGCACACTAGCTTTCTCTGTCACTCTCTTC	2742
Qу	2587	ACCATCTTTGCATTTGTCTGCATCAGCGTGCTCTTGTACCGAAGGCGGCCGCACCTGGGA	2646
Db	2743	ACCATTTTTGCTTTCATCAATGTGGGGGTGCTGCTGTATCGGCGGAGGCCAGAAATCGGA	2802
Qу	2647	GGGGAGCTTGGTGGCCCCGTGGCTGCAAGCTCGCCACAACATGGCTCTTTGTGAGCCTG	2706
Db	2803	GGTGAGCTGGGTGGGCCCCGGACTGCCAAGCTCCTCACATCCTGCCTCTTTGTGCTCCTA	2862
QУ	2707	TGGCTCCTCTACATACTCTTTGCCACACTAGAGGCCTATTGCTACATCAAGGGGTTCTAA	2766
Db	2863	TGGCTCTTGTACATTTTCTTCTCCTCCTGGAGGCCTACTGCCACATAAAAGGCTTCTAA	2922

RESULT 8 AY398963

```
DEFINITION
           Mus musculus SLC8Al gene, VIRTUAL TRANSCRIPT, partial sequence,
           genomic survey sequence.
ACCESSION
           AY398963
VERSION
           AY398963.1 GI:39754952
KEYWORDS
           GSS.
SOURCE
           Mus musculus (house mouse)
 ORGANISM Mus musculus
           Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
           Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
REFERENCE
              (bases 1 to 2922)
 AUTHORS
           Clark, A.G., Glanowski, S., Nielson, R., Thomas, P., Kejariwal, A.,
           Todd, M.A., Tanenbaum, D.M., Civello, D.R., Lu, F., Murphy, B.,
           Ferriera, S., Wang, G., Zheng, X.H., White, T.J., Sninsky, J.J.,
           Adams, M.D. and Cargill, M.
           Inferring nonneutral evolution from human-chimp-mouse orthologous
 TITLE
           gene trios
           Science 302 (5652), 1960-1963 (2003)
  JOURNAL
  PUBMED
           14671302
REFERENCE
              (bases 1 to 2922)
           Clark, A.G., Glanowski, S., Nielson, R., Thomas, P., Kejariwal, A.,
 AUTHORS
           Todd, M.A., Tanenbaum, D.M., Civello, D.R., Lu, F., Murphy, B.,
           Ferriera, S., Wang, G., Zheng, X.H., White, T.J., Sninsky, J.J.,
           Adams, M.D. and Cargill, M.
           Direct Submission
 TITLE
           Submitted (16-NOV-2003) Celera Genomics, 45 West Gude Drive,
  JOURNAL
           Rockville, MD 20850, USA
COMMENT
           This sequence was made by sequencing genomic exons and ordering
           them based on alignment.
                   Location/Qualifiers
FEATURES
                   1. .2922
    source
                   /organism="Mus musculus"
                   /mol type="genomic DNA"
                   /db xref="taxon:10090"
                   <1. .>2922
    gene
                   /gene="SLC8A1"
                   /locus tag="HCM0065"
ORIGIN
 Query Match
                        42.3%; Score 1169.8; DB 29; Length 2922;
 Best Local Similarity
                        66.2%; Pred. No. 2.4e-276;
                                                                        5;
 Matches 1845; Conservative
                              0; Mismatches 771; Indels 171; Gaps
         142 TGTTCAGGGTCATCGGACTGCAAGGAGGGTGTCATCCTGCCAATCTGGTACCCGGAGAAC 201
Qy
             111 | 11 | 111
                            Db
         145 TGTACTGGCTCATATTACTGTAAGAAAGGGGTGATCTTGCCCATTTGGGAACCCCAAGAC 204
         202 CCTTCCCTTGGGGACAAGATTGCCAGGGTCATTGTCTATTTTGTGGCCCTGATATACATG 261
Qу
                  205 CCATCTTTTGGGGACAAAATTGCTAGAGCAACTGTGTATTTTGTGGCCATGGTCTACATG 264
Db
Qу
         262 TTCCTTGGGGTGTCCATCATTGCTGACCGCTTCATGGCATCTATTGAAGTCATCACCTCT 321
             265 TTCCTTGGAGTTTCTATTATTGCAGACCGGTTTATGTCCTCTATAGAGGTCATCACCTCT 324
Db
         322 CAAGAGGGGGGGGTGACAATTAAGAAACCCAATGGAGAAACCAGCACAACCACTATTCGG 381
Qу
             325 CAAGAGAAAGAAATAACGATAAAGAAACCGAATGGAGAGACCACCAAGACGACGGTGAGA 384
Db
```

Qy Db		GTCTGGAATGAAACTGTCTCCAACCTGACCCTTATGGCCCTGGGTTCCTCTGCTCCTGAG	
Qу		ATACTCCTCTTTAATTGAGGTGTGTGGTCATGGGTTCATTGCTGGTGATCTGGGACCT	
Db	445		504
Qу	502	TCTACCATTGTAGGGAGTGCAGCCTTCAACATGTTCATCATCATTGGCATCTGTGTCTAC	561
Db	505	AGCACCATCGTGGGAAGTGCTGCCTTTAACATGTTCATCATAATCGCACTCTGTGTTTAC	564
Qу	562	GTGATCCCAGACGGAGAGATCAAGCATCTACGAGTCTTCATCACCGCT	621
Db	565	GTGGTCCCTGATGGAGAGACAAGGAAGATCAAGCATCTGCGTGTTCTTTGTGACAGCA	624
QУ	622	GCTTGGAGTATCTTTGCCTACATCTGGCTCTATATGATTCTGGCAGTCTTCTCCCCTGGT	681
Db	625	GCCTGGAGCATCTTTGCCTATACCTGGCTTTATATAATCTTGTCTGTC	684
Qу		GTGGTCCAGGTTTGGGAAGGCCTCCTCACTCTCTTCTTCTTCCAGTGTGTGT	
Db	685	GTTGTGGAGGTCTGGGAAGGCTTGCTTACTTTCTTCTTCTTCTCCCATCTGCGTTGTTTC	744
Qу		GCCTGGGTGGCAGATAAACGACTGCTCTTCTACAAATACATGCACAAAAAGTACCGCACA	
Db		GCGTGGGTAGCAGACAGGCGGCTTCTCTTTTACAAGTATGTCTACAAGCGGTACAGGGCC	
QУ		GACAAACACCGAGGAATTATCATAGAGACAGAGGGTGACCACCCTAAGGGC	
Db		GGCAAGCAGAGGGGGATGATCATTGAACATGAAGGAGACAGAC	
ДУ		ATTGAGATGGAAAATGATGAATTCCCATTTTCTAGATGGGAACCTGGTGCCCCTG	
Db		GAAGGGAAGGAAGTGGTCACTCTCATGTTGACAATTTCTTAGATGGGGCTCTG	
Qy Db			
Qу		ATTCTCAAGGATCTGAAGCAAAAACACCCAGAGAAGGACTTAGATCAGCTGGTGGAGATG	
₽J Db			
Qу	1015	GCCAATTACTATGCTCTTTCCCACCAACAGAAGAGCCGCGCCTTCTACCGTATCCAAGCC	1074
Db	1045		1104
Qу	1075	ACTCGTATGATGACTGGTGCAGGCAATATCCTGAAGAAACATGCAGCAGAACAAGCCAAG	1134
Db	1105		1164
Qу	1135	AAGGCCTCCAGCATGAGCGAGGTGCACACCGATGAGCCTGAGGACTTTATTTCCAAG	1191
Db	1165		1224

Qу	1192	GTCTTCTTTGACCCATGTTCTTACCAGTGCCTGGAGAACTGTGGGGGCTGTACTCCTGACA	1251
Db	1225	ATCTTCTTTGAGCAAGGAACATACCAGTGTCTAGAGAACTGTGGTACTGTGGCCCTCACC	1284
Qу	1252	GTGGTGAGGAAAGGGGGAGACATGTCAAAGACCATGTATGT	1311
Db	1285	ATTATGCGCAGAGGGGGCGACTTGAGCACCACTGTGTTTGTT	1344
Qу	1312	GGTTCTGCCAATGCAGGGGCTGACTATGAGTTCACAGAGGGCACGGTGGTTCTGAAGCCA	1371
Db	1345	GGCACAGCCAATGCTGGGTCTGATTATGAATTCACGGAAGGGACTGTGATCTTCAAACCA	1404
Qу	1372	GGAGAGACCCAGAAGGAGTTCTCCGTGGGCATAATTGATGACGACATTTTTGAGGAGGAT	1431
Db	1405	GGGGAGACCCAGAAGGAAATCAGAGTTGGCATCATTGATGATGATATCTTTGAAGAAGAT	1464
Qу	1432	GAACACTTCTTTGTAAGGTTGAGCAATGTCCGCATAGAGGAGGAGCAGCCAGAGGAGGGGGGGG	1491
Db	1465	GAAAACTTCCTTGTGCATCTTAGCAATGTCAGAGTCTCTTCAGATGTTTCAGAAGATGGC	1524
Qу	1492	ATGCCTCCAGCAATATTCAACAGTCTTCCCTTGCCTCGGGCTGTCCTAGCCTCCCCTTGT	1551
Db	1525	ATACTAGAATCCAATCACGCTTCTTCAATTGCTTGTCTTGGGTCACCCAGC	1575
QУ	1552	GTGGCCACAGTTACCATCTTGGATGATGACCATGCAGGCATCTTCACTTTTGAATGTGAT	1611
Db	1576	ACTGCCACCATAACCATTTTTGATGATGACCATGCAGGCATCTTTACATTTGAGGAACCC	1635
Qу	1612	ACTATTCATGTCAGTGAGAGTATTGGTGTTATGGAGGTCAAGGTTCTGCGGACATCAGGT	1671
Db	1636	GTGACTCACGTGAGCGAGAGCATTGGCATCATGGAGGTGAAGGTTTTGAGAACCTCTGGA	1695
Qу	1672	GCCCGGGGTACAGTCATCGTCCCCTTTAGGACAGTAGAAGGGACAGCCAAGGGTGGCGGT	1731
Db	1696	GCTCGAGGAAATGTTATCATTCCCTACAAAACTATTGAAGGCACAGCCCGAGGTGGAGGG	1755
Qу	1732	GAGGACTTTGAAGACACATATGGGGAGTTGGAATTCAAGAATGATGAAACTGTGAAAACC	1791
Db		GAAGACTTTGAGGACACCTGTGGAGAGCTCGAATTCCAGAACGATGAAATAGTCAAAACA	
Qy	1792	ATAAGGGTTAAAATAGTAGATGAGGAGGAATACGAAAGGCAAGAGAATTTCTTCATTGCC	1851
Db		ATATCAGTCAAGGTAATCGATGACGAGGAGTATGAGAAAAAACAAGACCTTCTTCATTGAG	
Qу	1852	CTTGGTGAACCGAAATGGATGGAACGTGGAATATCAGATGTGACAGACA	1905
Db		ATTGGAGAGCCCCGTCTGGTGGAGATGAGTGAGAAAGNNNNNNNNNN	
Qу	1906		1905
Db		NNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNN	
Qу	1906		1905
Db	1996	GCTAGAGATCATCCGATTCCCTCTACTGTAATCACCATCTCAGAGGAATATGATGACAAG	2055
Qу	1906	CTGACTATGGAAGAGAGGGGCCAAGAGGATAGCAGAGATGGGAAAGCCAGTA	1959

Db	2056		2115
Qу	1960	TTGGGTGAACACCCCAAACTAGAAGTCATCATTGAAGAGTCCTATGAGTTCAAGACTACG	2019
Db	2116	CTAGGCGAGCACCAAGCTGGAGGTGATCATCGAAGAGTCTTACGAATTCAAGAGCACT	2175
Qy	2020	GTGGACAAACTGATCAAGAAGACAAACCTGGCCTTGGTTGTGGGGACCCATTCCTGGAGG	2079
Db	2176	GTGGACAAACTCATTAAGAAGACGAACCTGGCCCTTGTGGTGGGGACCAACAGCTGGAGA	2235
QУ	2080	GACCAGTTCATGGAGGCCATCACCGTCAGTGCAGCAGGGGATGAGGATGAGGATGAATCC	2139
Db	2236	GAGCAGTTTATCGAAGCCATCACTGTCAGCGCTGGGGAAGATGACGATGATGATGATGT	2295
QУ	2140	GGGGAGGAGGCTGCCTCCTGCTTTGACTACGTCATGCACTTCCTGACTGTCTTCTGG	2199
Db	2296	GGGGAGGAGAAGCTGCCCTCTTTTTGATTACGTGATGCACTTTCTCACAGTGTTCTGG	2355
QУ		AAGGTGCTGTTTGCCTGTGTCCCCCACAGAGTACTGCCACGGCTGGGCCTGCTTCGCC	
Db	2356	AAGGTTCTGTTTGCCTTCGTCCCACCTACAGAATACTGGAATGGCTGGGCCTGCTTCATT	2415
Qу		GTCTCCATCCTCATCATTGGCATGCTCACCGCCATCATTGGGGACCTGGCCTCGCACTTC	
Db		GTCTCCATCCTCATGATCGGCCTACTGACCGCCTTCATTGGAGACCTGGCTTCCCACTTT	
Qу		GGCTGCACCATTGGTCTCAAAGATTCAGTCACAGCTGTTGTTTTCGTGGCATTTGGCACC	
Db		GGCTGCACCATTGGTCTGAAAGATTCCGTGACTGCCGTTGTGTTTTGTTGCTCTTGGAACC	
QY		TCTGTCCCAGATACGTTTGCCAGCAAAGCTGCTGCCCTCCAGGATGTATATGCAGACGCC	
Db		TCGGTGCCAGACACATTTGCCAGCAAAGTAGCAGCTACCCAGGACCAGTATGCAGATGCG	
Qy		TCCATTGGCAACGTGACGGCCAGCAACGCCGTCAATGTCTTCCTGGGCATCGGCCTGGCC	
Db		TCTATAGGCAATGTCACTGGAAGCAATGCTGTGAATGTCTTCCTGGGAATCGGCGTGGCC	
ДУ		TGGTCCGTGGCCGCCATCTACTGGGCTCTGCAGGGACAGGAGTTCCACGTGTCGGCCGGC	
Qy		ACACTGGCCTTCTCCGTCACCCTCTTCACCATCTTTGCATTTGTCTGCATCAGCGTGCTC	
Db			
Qy		TTGTACCGAAGGCGGCCGCACCTGGGAGGGGAGCTTGGTGGCCCCCGTGGCTGCAAGCTC	
Db			
Qу	2680	GCCACAACATGGCTCTTTGTGAGCCTGTGGCTCCTCTACATACTCTTTGCCACACTAGAG	2739
Db	2836		2895
Qу		GCCTATTGCTACATCAAGGGGTTCTAA 2766	

```
RESULT 9
AY408693
                                  2516 bp
                                                            GSS 12-DEC-2003
LOCUS
           AY408693
                                            DNA
                                                    linear
DEFINITION Homo sapiens HCM3309 gene, VIRTUAL TRANSCRIPT, partial sequence,
           genomic survey sequence.
ACCESSION
           AY408693
VERSION
           AY408693.1 GI:39764664
KEYWORDS
           GSS.
SOURCE
           Homo sapiens (human)
  ORGANISM
           Homo sapiens
           Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
           Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
              (bases 1 to 2516)
REFERENCE
 AUTHORS
           Clark, A.G., Glanowski, S., Nielson, R., Thomas, P., Kejariwal, A.,
           Todd, M.A., Tanenbaum, D.M., Civello, D.R., Lu, F., Murphy, B.,
           Ferriera, S., Wang, G., Zheng, X.H., White, T.J., Sninsky, J.J.,
           Adams, M.D. and Cargill, M.
           Inferring nonneutral evolution from human-chimp-mouse orthologous
  TITLE
           gene trios
           Science 302 (5652), 1960-1963 (2003)
  JOURNAL
  PUBMED
           14671302
REFERENCE
           2 (bases 1 to 2516)
 AUTHORS
           Clark, A.G., Glanowski, S., Nielson, R., Thomas, P., Kejariwal, A.,
           Todd, M.A., Tanenbaum, D.M., Civello, D.R., Lu, F., Murphy, B.,
           Ferriera, S., Wang, G., Zheng, X.H., White, T.J., Sninsky, J.J.,
           Adams, M.D. and Cargill, M.
           Direct Submission
  ጥፐጥፒድ
           Submitted (16-NOV-2003) Celera Genomics, 45 West Gude Drive,
  JOURNAL
           Rockville, MD 20850, USA
COMMENT
           This sequence was made by sequencing genomic exons and ordering
           them based on alignment.
FEATURES
                   Location/Qualifiers
                   1. .2516
    source
                   /organism="Homo sapiens"
                   /mol type="genomic DNA"
                   /db xref="taxon:9606"
                   <1. .>2516
    gene
                   /locus tag="HCM3309"
ORIGIN
  Query Match
                        41.6%; Score 1151.4; DB 29; Length 2516;
                        66.0%; Pred. No. 7.6e-272;
  Best Local Similarity
                                                                         5;
 Matches 1673; Conservative 0; Mismatches 809; Indels
                                                            51; Gaps
         266 TTGGGGTGTCCATCATTGCTGACCGCTTCATGGCATCTATTGAAGTCATCACCTCTCAAG 325
Qy ·
             Db
           1 TGGGAGTGTCCATCATCGCCGACCGTTTCATGGCGGCCATCGAGGTCATCACGTCAAAAG 60
         326 AGAGGGAGGTGACAATTAAGAAACCCAATGGAGAAACCAGCACAACCACTATTCGGGTCT 385
Qу
             61 AGAAGGAGATCACCATCACCAAGGCCAACGGTGAGACCAGCGTGGGCACCGTTCGCATCT 120
Db
         386 GGAATGAAACTGTCTCCAACCTGACCCTTATGGCCCTGGGTTCCTCTGCTCCTGAGATAC 445
Qу
```

Db	121	GGAATGAGACGGTGTCCAACCTCACGCTCATGGCCCTGGGCTCCTCCGCACCTGAGATCC	180
Qy	446	TCCTCTCTTTAATTGAGGTGTGTGGTCATGGGTTCATTGCTGGTGATCTGGGACCTTCTA	505
Db	181	${\tt TGCTGTCAGTCATCGAAGTCTGCGGCCACAACTTCCAGGCGGGTGAGCTGGGCCCAGGCA}$	240
Qy	506	CCATTGTAGGGAGTGCAGCCTTCAACATGTTCATCATCATTGGCATCTGTGTCTACGTGA	565
Db	241	CCATCGTGGGCAGCGCTGCCTTCAACATGTTTGTGGTCATCGCCGTGTGCATCTACGTCA	300
Qу	566	TCCCAGACGGAGAGACTCGCAAGATCAAGCATCTACGAGTCTTCTTCATCACCGCTGCTT	625
Db	301	TCCCAGCCGGCGAGAGCCGCAAGATCAAGCACCTGAGAGTCTTCTTTGTCACTGCCTCTT	360
Qу	626	GGAGTATCTTTGCCTACATCTGGCTCTATATGATTCTGGCAGTCTTCTCCCCTGGTGTGG	685
Db	361	GGAGCATCTTCGCCTATGTCTGGCTTTATCTCATCCTTGCTGTTTTTTCCCCCGGTGTGG	420
Qy	686	TCCAGGTTTGGGAAGGCCTCCTCACTCTTCTTCTTTCCAGTGTGTGT	745
Db	421	TCCAGGTGTGGGAGGCGCTGCTGACCCTGGTCTTCTTCCCGGTGTGCGTGTATTCGCCT	480
Qу	746	GGGTGGCAGATAAACGACTGCTCTTCTACAAATACATGCACAAAAAGTACCGCACAGACA	805
Db	481	GGATGGCCGACAAGCGGCTGCTCTTCTACAAGTACGTGTACAAGCGCTACCGCACCGACC	540
Qу	806	AACACCGAGGAATTATCATAGAGACAGAGGGTGACCACCCTAAGGGCATTGAGATGGATG	865
Db	541	CACGCAGCGGCATCATCATAGGCGCCGAGGGCGACCCCCCGAAGAGCATCGAGCTGGACG	600
Qy	866	GGAAAATGATGAATTCCCATTTTCTAGATGGGAACCTGGTGCCCCTGG	913
Db	601	GCACGTTCGTGGGCGCCGAGGCCCCAGGTGAGCTGGGCGGCCCGGGCCCGCCG	660
Qу	914	AAGGGAAGGAAGTGGATGAGTCCCGCAGAGAGATGATCCGGATTCTCAAGGATCTGAAGC	973
Db	661	AGGCGCGCGAGCTGGACGCCAGCCGCGGAGGTCATCCAGATCCTCAAGGACCTCAAGC	720
Qy	974	AAAAACACCCAGAGAAGGACTTAGATCAGCTGGTGGAGATGGCCAATTACTATGCTCTTT	1033
Db	721	AGAAGCACCCGGACAAGGATCTGGAGCAGCTGGTGGGCATCGCCAACTACTACGCGCTGC	780
Qу	1034	CCCACCAACAGAAGAGCCGCGCCTTCTACCGTATCCAAGCCACTCGTATGATGACTGGTG	1093
Db	781	TGCACCAGCAGAAGAGCCGCGCCTTCTACCGCATCCAGGCCACGCGGCTGATGACCGGCG	840
Qу	1094	CAGGCAATATCCTGAAGAAACATGCAGCAGAACAAGCCAAGAAGGCCTCCAGCATGAGCG	1153
Db	841	CCGGGAACGTGCTGCGCAGACACGCGGGGGGCGCCTCGCGCAGGGCGGCGCCGGCCG	897
Qу	1154	AGGTGCACACCGATGAGCCTGAGGACTTTATTTCCAAGGTCTTCTTTGACCCATGTTCTT	1213
Db	898	AGGGCGCGGGCGAGACGACGACGCCCCATCTTCTTCGAGCCTAGCCTCT	957
Qу	1214	ACCAGTGCCTGGAGAACTGTGGGGCTGTACTCCTGACAGTGGTGAGGAAAGGGGGGAGACA	1273
Db	958	ACCACTGCCTGGAGAACTGCGGCTCCGTGCTGCTGTCCGTCACGTGCCAGGGCGGCGAGG	1017

Qу	1274	TGTCAAAGACCATGTATGTGGACTACAAAACAGAGGATGGTTCTGCCAATGCAGGGGCTG	1333
Db	1018	GCAACAGCACCTTCTACGTGGACTACCGCACTGAGGACGGCTCTGCCAAGGCGGGCTCCG	1077
Qу	1334	ACTATGAGTTCACAGAGGGCACGGTGGTTCTGAAGCCAGGAGAGACCCAGAAGGAGTTCT	1393
Db	1078	ACTACGAGTACAGNGAGGGCACGCTGGTGTTCAAACCAGGCGAGACGCAGAAGGAGCTGC	1137
Qy	1394	CCGTGGGCATAATTGATGACGACATTTTTGAGGAGGATGAACACTTCTTTGTAAGGTTGA	1453
Db	1138	GCATCGGCATCATCGACGACGACATCTTCGAGGAGGACGAGCATTTCTTCGTGCGGCTGC	1197
Qy	1454	GCAATGTCCGCATAGAGGAGGAGCAGCCAGAGGAGGGGGATGCCTCCAGCAATATTCAACA	1513
Db	1198	TGAACCTGCGCGTGGGCGACGCGCAGGGCATGTTCGAGCCGGACG	1242
Qy	1514	GTCTTCCCTTGCCTCGGGCTGTCCTAGCCTCCCCTTGTGTGGCCACAGTTACCATCTTGG	1573
Db	1243	GCGGCGGCCCAAGGGGCGCTGCTGGCCACCGTCACCATCCTGG	1302
Qy	1574	ATGATGACCATGCAGGCATCTTCACTTTTGAATGTGATACTATTCATGTCAGTGAGAGTA	1633
Db	1303	ACGACGACCACGCAGGCATCTTCTCCTTCCAGGACCGCCTGCTGCACGTGAGCGAGTGCA	1362
Qy	1634	TTGGTGTTATGGAGGTCAAGGTTCTGCGGACATCAGGTGCCCGGGGTACAGTCATCGTCC	1693
Db	1363	TGGGCACCGTGGACGTCGTGCGCAGCTCGGGCGCGCGCGC	1422
Qу	1694	CCTTTAGGACAGTAGAAGGGACAGCCAAGGGTGGCGGTGAGGACTTTGAAGACACATATG	1753
Db	1423	CCTACCGCACGGTGGACGCCACGGCGCGCGCGCGCGCGCG	1482
Qу	1754	GGGAGTTGGAATTCAAGAATGATGAAAACTGTGAAAACCATAAGGGTTAAAATAGTAGATG	1813
Db	1483	GAGAGCTGGAGTTTGGCGACGACGACCATGAAAACTCTTCAGGTGAAGATAGTTGATG	1542
Qy	1814	AGGAGGAATACGAAAGGCAAGAGAATTTCTTCATTGCCCTTGGTGAACCGAAATGGATGG	1873
Db	1543	ACGAGGAATATGAGAAAAAGGATAATTTCTTCATTGAGCTGGGCCAGCCCCAGTGGCTTA	1602
Qу	1874	AACGTGGAATATCAGATGTGACAGACAGGAAGCTGACTATGG	1915
Db	1603	AGCGAGGGATTTCAGNNNNNNNNNNNNNNNNNNNNNNNNN	1662
Qу	1916	AAGAAGAGGAGGCCAAGAGGATAGCAGAGATGGGAAAGCCAGTATTGGGTGAACACCCCA	1975
Db	1663	AGGAGGAGGAGGCTCGGAGGATAGCAGAGATGGGCAAGCCAGTTCTTGGGGAGAACTGCC	1722
Qy	1976	AACTAGAAGTCATCATTGAAGAGTCCTATGAGTTCAAGACTACGGTGGACAAACTGATCA	2035
Db	1723	GGCTGGAGGTCATCGAGGAGTCATATGATTTTAAGNNNNNNNNNN	1782
Qy	2036	${\tt AGAAGACAAACCTGGCCTTGGTTGTGGGGACCCATTCCTGGAGGGACCAGTTCATGGAGG}$	2095
Db	1783	NNINNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNN	1842

Qу	2096	CCATCACCGTCAGTGCAGCAGGGGATGAGGATGAGTGAATCCGGGGAGGAGAGGC	2152
Db	1843	NNNNNNNNNNNNNNNNNNGGGACGAGGAGGAGGAGGAGGAGGAGGAGGAGGAGGAGGA	1902
Qу	2153	TGCCCTCCTGCTTTGACTACGTCATGCACTTCCTGACTGTCTTCTGGAAGGTGCTGTTTG	2212
Db	1903	TGCCGTCGTGCTTTGACTACGTGATGCACTTCCTGACGGTGTTCTGGAAGGTGCTCTTCG	1962
Qу	2213	CCTGTGTGCCCCCACAGAGTACTGCCACGGCTGGGCCTGCTTCGCCGTCTCCATCCTCA	2272
Db	1963	CCTGTGTGCCCCCCACCGAGTACTGCCACGGCTGGGCCTGCTTTGGTGTCTCCATCCTGG	2022
Qу	2273	TCATTGGCATGCTCACCGCCATCATTGGGGACCTGGCCTCGCACTTCGGCTGCACCATTG	2332
Db	2023	TCATCGGCCTGCTCACCGCCCTCATTGGGGACCTCGCCTCCCACTTCGGCTGCACCGTTG	2082
Qy	2333	GTCTCAAAGATTCAGTCACAGCTGTTGTTTTCGTGGCATTTGGCACCTCTGTCCCAGATA	2392
Db	2083	GCCTCAAGGACTCTGTCAATGCTGTTGTCTTCGTTGCCCTGGGCACCTCCATCCCTGACA	2142
Qу	2393	CGTTTGCCAGCAAAGCTGCTGCCCTCCAGGATGTATATGCAGACGCCTCCATTGGCAACG	2452
Db	2143	CGTTCGCCAGCAAGGTGGCGGCGCTGCAGGACCAGTGCGCCGACGCGTCCATCGGCAACG	2202
Qy	2453	TGACGGCAGCAACGCCGTCAATGTCTTCCTGGGCATCGGCCTGGCCTGGTCCGTGGCCG	2512
Db	2203	TGACCGGCTCCAACGCGGTGAACGTGTTCCTTGGCCTGGGCGTCGCCTGGTCTGTGGCCG	2262
Qу	2513	CCATCTACTGGGCTCTGCAGGGACAGGAGTTCCACGTGTCGGCCGGC	2572
Db	2263	CCGTGTACTGGGCGGTGCAGGGCCGCCCTTCGAGGTGCGCACTGGCACGCTGGCCTTCT	2322
Qу	2573	CCGTCACCCTCTTCACCATCTTTGCATTTGTCTGCATCAGCGTGCTCTTGTACCGAAGGC	2632
Db	2323	CCGTCACGCTCTTCACCGTCTTCGCCTTCGTGGGCATTGCCGTGCTGCTGTACCGGCGCC	2382
Qу	2633	GGCCGCACCTGGGAGGGGAGCTTGGTGGCCCCCGTGGCTGCAAGCTCGCCACAACATGGC	2692
Db	2383	GGCCGCACATCGGCGGCGAGCTGGGCGGCCCGCGCGGACCCAAGCTCGCCACCACCGCGC	2442
Qу	2693	TCTTTGTGAGCCTGTGGCTCCTCTACATACTCTTTGCCACACTAGAGGCCTATTGCTACA	2752
Db	2443	TCTTCCTGGGCCTCTGGCTCCTGTACATCCTCTTCGCCAGCCTGGAGGCGTACTGCCACA	2502
Qу	2753	TCAAGGGGTTCTA 2765	
Db	2503	TCCGGGGCTTCTA 2515	

# RESULT 10

AY398962

LOCUS AY398962 2881 bp DNA linear GSS 15-DEC-2003

DEFINITION Pan troglodytes SLC8A1 gene, VIRTUAL TRANSCRIPT, partial sequence,

genomic survey sequence.

ACCESSION AY398962

VERSION AY398962.1 GI:39754951

KEYWORDS GSS.

```
SOURCE
          Pan troglodytes (chimpanzee)
 ORGANISM
          Pan troglodytes
          Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
          Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Pan.
REFERENCE
             (bases 1 to 2881)
          1
 AUTHORS
          Clark, A.G., Glanowski, S., Nielson, R., Thomas, P., Kejariwal, A.,
          Todd, M.A., Tanenbaum, D.M., Civello, D.R., Lu, F., Murphy, B.,
          Ferriera, S., Wang, G., Zheng, X.H., White, T.J., Sninsky, J.J.,
          Adams, M.D. and Cargill, M.
 TITLE
          Inferring nonneutral evolution from human-chimp-mouse orthologous
          gene trios
 JOURNAL
          Science 302 (5652), 1960-1963 (2003)
  PUBMED
          14671302
REFERENCE
             (bases 1 to 2881)
 AUTHORS
          Clark, A.G., Glanowski, S., Nielson, R., Thomas, P., Kejariwal, A.,
          Todd, M.A., Tanenbaum, D.M., Civello, D.R., Lu, F., Murphy, B.,
          Ferriera, S., Wang, G., Zheng, X.H., White, T.J., Sninsky, J.J.,
          Adams, M.D. and Cargill, M.
          Direct Submission
 TITLE
 JOURNAL
          Submitted (16-NOV-2003) Celera Genomics, 45 West Gude Drive,
          Rockville, MD 20850, USA
COMMENT
          This sequence was made by sequencing genomic exons and ordering
          them based on alignment.
FEATURES
                  Location/Qualifiers
                  1. .2881
    source
                  /organism="Pan troglodytes"
                  /mol type="genomic DNA"
                  /db xref="taxon:9598"
    gene
                  <1. .>2881
                  /gene="SLC8A1"
                  /locus tag="HCM0065"
ORIGIN
                      35.4%; Score 978.4; DB 29; Length 2881;
 Query Match
 Best Local Similarity
                      56.4%; Pred. No. 3.4e-229;
 Matches 1587; Conservative
                            0; Mismatches 1057; Indels 171;
        109 GACGTGCCAAGCACAGGGCAGAACAATGAGTCCTGTTCAGGGTCATCGGACTGCAAGGAG 168
Qу
                       1 1
                                         1111 111 1
Db
         76 GAAATGGAAGGAGAAGGAAATGAAACTGGTGAATGTACTGGATCATATTACTGTAAGAAA 135
        169 GGTGTCATCCTGCCAATCTGGTACCCGGAGAACCCTTCCCTTGGGGACAAGATTGCCAGG 228
Qy
            136 GGGGTGATTTTGCCCATTTGGGAACCCCANNNNCTTCTTTTGGGGACAAAATTGCTNNN 195
Db
        229 GTCATTGTCTATTTTGTGGCCCTGATATACATGTTCCTTGGGGTGTCCATCATTGCTGAC 288
Qy
              Db
        289 CGCTTCATGGCATCTATTGAAGTCATCACCTCTCAAGAGAGGGGAGGTGACAATTAAGAAA 348
Qу
Db
        349 CCCAATGGAGAAACCAGCACAACCACTATTCGGGTCTGGAATGAAACTGTCTCCAACCTG 408
Qy
        Db
```

ŲΫ	409	ACCUTTATGGCCCTGGGTTCCTCTGCTCCTGAGATACTCCTCTTTTAATTGAGGTGTGT	400
Db	376	инииниинииниинининининининининининининин	435
Qу	469	GGTCATGGGTTCATTGCTGGTGATCTGGGACCTTCTACCATTGTAGGGAGTGCAGCCTTC	528
Db	436		495
Qу	529	AACATGTTCATCATCATTGGCATCTGTGTCTACGTGATCCCAGACGGAGAGACTCGCAAG	588
Db	496		555
Qу	589	ATCAAGCATCTACGAGTCTTCTTCATCACCGCTGCTTGGAGTATCTTTGCCTACATCTGG	648
Db	556		615
Qy	649	CTCTATATGATTCTGGCAGTCTTCTCCCCTGGTGTGGTCCAGGTTTGGGAAGGCCTCCTC	708
Db	616	CTTTACATTATTTTGTCTGTCATATCTCCTGGTGTTGTGGAGGTCTGGGAAGGTTTGCTT	675
Qy	709	ACTCTCTTCTTCCAGTGTGTCCTTCTGGCCTGGGTGGCAGATAAACGACTGCTC	768
Db	676	ACTTTCTTCTTCTCCCATCTGTGTTGTGTTCGCTTGGGTAGCGGATAGGAGACTTCTG	735
Qу	769	TTCTACAAATACATGCACAAAAAGTACCGCACAGACAAACACCGAGGAATTATCATAGAG	828
Db	736	TTTTACAAGTATGTCTACAAGAGGTATCGAGCTGGCAAGCAGAGGGGGATGATTATTGAA	795
Qу	829	ACAGAGGGTGACCACCCTAAGGGCATTGAGATGGATGGAAAATGATGAAT	879
Db	796	CATGAAGGACAGGCCATCTTCTAAGACTGAAATTGAAATGGACGGGAAAGTGGTCAAT	855
Qу	880	TCCCATTTCTAGATGGGAACCTGGTGCCCCTGGAAGGGAAG	921
Db	856	TCTCATGTTGAAAATTTCTTAGATGGTGCTCTGGTTCTGGAGGTGGATGAGAGGGACCAA	915
Qy	922	GAAGTGGATGAGTCCCGCAGAGAGATGATCCGGATTCTCAAGGATCTGAAGCAAAAACAC	981
Db	916	GATGATGAAGAAGCTAGGCGAGAAATGGCTAGGATTCTGAAGGAACTTAAGCAGAAGCAT	975
Qу	982	CCAGAGAAGGACTTAGATCAGCTGGTGGAGATGGCCAATTACTATGCTCTTTCCCACCAA	1041
Db	976	CCAGATAAAGAAATAGAGCAATTAATAGAATTAGCTAACTACCAAGTCCTAAGTCAGCAG	1035
Qy	1042	CAGAAGAGCCGCGCCTTCTACCGTATCCAAGCCACTCGTATGATGACTGGTGCAGGCAAT	1101
Db .	1036	CAAAAAAGTAGAGCATTTATCGCATTCAAGCTACTCGCCTCATGACTGGAGCTGGCAAC	1095
QУ	1102	ATCCTGAAGAACATGCAGCAGAACAAGCCAAGAAGGCCTCCAGCATGAGCGAGGTGCAC	1161
Db	1096	ATTTTAAAGAGGCATGCAGCTGACCAAGCAAGGAAGGCTGTCAGCATGCACGAGGTCAAC	1155
Qу	1162	ACCGATGAGCCTGAGGACTTTATTTCCAAGGTCTTCTTTGACCCATGTTCTTACCAG	1218
Db	1156	ACTGAAGTGACTGAAAATGACCCTGTTAGTAAGATCTTCTTTGAACAAGGGACATATCAG	1215
Ov	1219	TGCCTGGAGAACTGTGGGGGCTGTACTCCTGACAGTGGTGAGGAAAGGGGGAGACATGTCA	1278

Db	1216		1275
Qу	1279	AAGACCATGTATGTGGACTACAAAACAGAGGATGGTTCTGCCAATGCAGGGGCTGACTAT	1338
Db	1276		1335
Qy	1339	GAGTTCACAGAGGGCACGGTGGTTCTGAAGCCAGGAGAGACCCAGAAGGAGTTCTCCGTG	1398
Db	1336		1395
Qу	1399	GGCATAATTGATGACGACATTTTTGAGGAGGATGAACACTTCTTTGTAAGGTTGAGCAAT	1458
Db	1396		1455
Qу	1459	GTCCGCATAGAGGAGCAGCCAGAGGAGGGGGATGCCTCCAGCAATATTCAACAGTCTT	1518
Db	1456		1506
Qу	1519	CCCTTGCCTCGGGCTGTCCTAGCCTCCCCTTGTGTGGCCACAGTTACCATCTTGGATGAT	1578
Db	1507		1566
Qу	1579	GACCATGCAGGCATCTTCACTTTTGAATGTGATACTATTCATGTCAGTGAGAGTATTGGT	1638
Db	1567	GACCACGCAGGCATTTTTACTTTTGAGGAACCTGTGACTCATGTGAGTGA	1626
Qу	1639	GTTATGGAGGTCAAGGTTCTGCGGACATCAGGTGCCCGGGGTACAGTCATCGTCCCCTTT	1698
Db	1627		1686
Qу	1699	AGGACAGTAGAAGGGACAGCCAAGGGTGGCGGTGAGGACTTTGAAGACACATATGGGGAG	1758
Db	1687	AAAACCATCGAAGGGACTGCCAGAGGTGGAGGNGAGGATTTTGANNACACTTGTGGAGAG	1746
Qу	1759	TTGGAATTCAAGAATGATGAAAACTGTGAAAACCATAAGGGTTAAAATAGTAGATGAGGAG	1818
Db	1747	CTCGAATTCCNNNNNNNNNNNNNNNNNNNNNNNNNNNNNN	1806
Qу	1819	GAATACGAAAGGCAAGAGAATTTCTTCATTGCCCTTGGTGAACCGAAATGGATGG	1878
Db	1807	ин	1866
Qу	1879	GGAATATCAGATGTGACAGACAGGAAG	1905
Db	1867	ин	1926
Qy	1906		1905
Db	1927	NNNNNNGCCAACCTGTCTTCAGGAAGGTTCATGCTAGAGAACATCCGATTCTCTACT	1986
Qу	1906	CTGACTATGGAAGAAGAGAG	1926
Db	1987		2046
Qy	1927	GCCAAGAGGATAGCAGAGATGGGAAAGCCAGTATTGGGTGAACACCCCAAACTAGAAGTC	1986

Db	2047	GAGAGGCGCATTGCAGAAATGGGGCGCCCCATCCTGGGAGAGCACACCAAGTTGGAAGTG	2106
Qу	1987	ATCATTGAAGAGTCCTATGAGTTCAAGACTACGGTGGACAAACTGATCAAGAAGACAAAC	2046
Db	2107	ATCATTGAAGAATCCTATGAATTCAAGAGTACTGTGGACAAACTCATTAAGAAGACAAAC	2166
Qу	2047	CTGGCCTTGGTTGTGGGGACCCATTCCTGGAGGGACCAGTTCATGGAGGCCATCACCGTC	2106
Db	2167	CTGGCCCTTGTGGTTGGGACTAACAGCTGGAGAACAGTTCATTGAAGCTATCACTGTC	2226
Qу	2107	AGTGCAGCAGGGGATGAGGATGAGTGAATCCGGGGAGGAGAGGCTGCCCTCCTGCTTT	2166
Db	2227	AGTGCTGGGGAAGATGATGACGACGATGAATGTGGGGAAGAGAAGCTGCCCTCTGTTTC	2286
Qу	2167	GACTACGTCATGCACTTCCTGACTGTCTTCTGGAAGGTGCTGTTTGCCTGTGTGCCCCCC	2226
Db	2287	GATTACGTGATGCACTTTCTGACTGTGTTCTGGAAGGTCTTGTTTGCCTTCGTCCCCCCT	2346
QУ	2227	ACAGAGTACTGCCACGGCTGGGCCTGCTTCGCCGTCTCCATCCTCATCATTGGCATGCTC	2286
Db	2347	ACTGAATACTGGAATGGCTGGGCGTGTTTCATTGTCTCCATCCTCATGATTGGCCTACTG	2406
Qу	2287	ACCGCCATCATTGGGGACCTGGCCTCGCACTTCGGCTGCACCATTGGTCTCAAAGATTCA	2346
Db	2407	ACAGCTTTCATTGGAGACCTGGCTTCCCACTTTGGCTGCACCATTGGCCTGAAAGATTCT	2466
Qу	2347	GTCACAGCTGTTGTTTTCGTGGCATTTGGCACCTCTGTCCCAGATACGTTTGCCAGCAAA	2406
Db	2467	GTGACTGCAGTCGTTCGTCGCACTTGGAACATCAGTGCCAGACACATTTGCCAGCAAA	2526
Qу		GCTGCTGCCCTCCAGGATGTATATGCAGACGCCTCCATTGGCAACGTGACGGGCAGCAAC	
Db		GTGGCAGCCACCCAGGACCAGTATGCAGACGCCTCCATAGGTAACGTCACGGGCAGCAAC	
Qу		GCCGTCAATGTCTTCCTGGGCATCGGCCTGGCCTGGTCCGTGGCCGCCATCTACTGGGCT	
Db	2587	GCGGTGAACGTCTTCCTGGGAATCGGTGTGGCCTGGTCCATCGCTGCCATCTACCACGCA	2646
Qу		CTGCAGGACAGGAGTTCCACGTGTCGGCCGGCACACTGGCCTTCTCCGTCACCCTCTTC	
Db		GCCAACGGGGAACAGTTCAAAGTGTCCCCTGGCACACTAGCTTTCTCTGTCACTCTCTTC	
Qу		ACCATCTTTGCATTTGTCTGCATCAGCGTGCTCTTGTACCGAAGGCGGCCGCACCTGGGA	
Db .		ACCATTTTTGCTTTCATCAATGTGGGGGTGCTGCTGTATCGGCGGANNCCAGAAANNNGN	
Qу		GGGGAGCTTGGTGGCCCCCGTGGCTGCAAGCTCGCCACAACATGGCTCTTTGTGAGCCTG	
Db		GGTNNNNNGGGTNGGCCCCGGACTGCCAAGCTCCTCACATNCTGCCTCTTTGTGCTCCTA	2826
Qу		TGGCTCCTCTACATACTCTTTGCCACACTAGAGGCCTATTGCTACATCAAGGGGT 2761	
Db	2827	TGGCTCTTGTACATTTTCTTCTCCTCCNTGGAGGCCTACTGCCACATAAAAGGCT 2881	

```
LOCUS
           CNSLT1IBJ
                                   1589 bp
                                              mRNA
                                                      linear
                                                               HTC 18-JUN-2003
           human full-length cDNA 5-PRIME end of clone CSODB006YD18 of
DEFINITION
           Neuroblastoma of Homo sapiens (human).
ACCESSION
           BX248763
           BX248763.1 GI:28375580
VERSION
KEYWORDS
           HTC.
           Homo sapiens (human)
SOURCE
  ORGANISM
           Homo sapiens
           Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
           Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
REFERENCE
           1 (bases 1 to 1589)
           Li, W.B., Gruber, C., Jessee, J. and Polayes, D.
  AUTHORS
  TITLE
           Full-length cDNA libraries and normalization
  JOURNAL
           Unpublished
           Contact: Feng Liang Email: fliang@lifetech.com URL:
  REMARK
           http://fulllength.invitrogen.com/ InVitroGen Corporation 1600
           Faraday Avenue
REFERENCE
           2
               (bases 1 to 1589)
           Genoscope.
  AUTHORS
  TITLE
           Direct Submission
           Submitted (13-FEB-2003) Genoscope - Centre National de Sequencage:
  JOURNAL
           BP 191 91006 EVRY cedex - FRANCE (E-mail : seqref@genoscope.cns.fr
           - Web: www.genoscope.cns.fr)
           1st strand cDNA was primed with a NotI-oligo(dT) primer. Five prime
COMMENT
           end enriched, double-strand cDNA was digested with Not I and cloned
           into the Not I and Eco RV sites of the pCMVSPORT 6 vector. Library
           was normalized. Library was constructed by Life Technologies, a
           division of Invitrogen.
                    Location/Oualifiers
FEATURES
                    1. .1589
     source
                    /organism="Homo sapiens"
                    /mol type="mRNA"
                    /db xref="taxon:9606"
                    /clone="CS0DB006YD18"
                    /tissue type="Neuroblastoma"
                    /note="end: 5-PRIME~Cot 10-normalized~vector pCMVSPORT 6"
     CDS
                    619. .>1589
                    /note="unnamed protein product"
                    /codon start=1
                    /protein id="CAD66570.1"
                    /db xref="GI:28375581"
                    /translation="MAWLRLQPLTSAFLHFGLVTFVLFLNGLRAEAGGSGDVPSTGQN
                    NESCSGSSDCKEGVILPIWYPENPSLGDKIARVIVYFVALIYMFLGVSIIADRFMASI
                    EVITSOEREVTIKKPNGETSTTTIRVWNETVSNLTLMALGSSAPEILLSLIEVCGHGF
                    IAGDLGPSTIVGSAAFNMFIIIGICVYVIPDGETRKIKHLRVFFITAAWSIFAYIWLY
                    MILAVFSPGVVQVWEGLLTLFFFPVCVLLAWVADKRLLFYKYMHKKYRTDKHRGIIIE
                    TEGDHPKGIEMDGKMMNSHFLDGNLVPLEGKEVDESRREMIRILKDL"
ORIGIN
  Query Match
                         35.1%; Score 971; DB 11; Length 1589;
  Best Local Similarity
                         100.0%; Pred. No. 1.6e-227;
 Matches 971; Conservative
                                0; Mismatches
                                                  0; Indels
                                                                0;
                                                                   Gaps
                                                                            0;
           1 ATGGCGTGGTTAAGGTTGCAGCCTCTCACCTCTGCCTTCCTCCATTTTGGGCTGGTTACC 60
Qу
              619 ATGGCGTGGTTAAGGTTGCAGCCTCTCACCTCTGCCTTCCTCCATTTTGGGCTGGTTACC 678
Db
```

		TTCGAGCAGAGGCTGGTGGCTCAGGGGACGTGCC.		120
		TTCGAGCAGAGGCTGGTGGCTCAGGGGACGTGCC		738
		GTTCAGGGTCATCGGACTGCAAGGAGGGTGTCAT		180
		GTTCAGGGTCATCGGACTGCAAGGAGGGTGTCAT		798
		CTTCCCTTGGGGACAAGATTGCCAGGGTCATTGT(		240
		CTTCCCTTGGGGACAAGATTGCCAGGGTCATTGT		858
		TCCTTGGGGTGTCCATCATTGCTGACCGCTTCAT(		300
		TCCTTGGGGTGTCCATCATTGCTGACCGCTTCAT		918
		AAGAGAGGGAGGTGACAATTAAGAAACCCAATGG		360
		AAGAGAGGGAGGTGACAATTAAGAAACCCAATGGA		978
		TCTGGAATGAAACTGTCTCCAACCTGACCCTTAT(		420
		TCTGGAATGAAACTGTCTCCAACCTGACCCTTAT(		1038
		TACTCCTCTCTTTAATTGAGGTGTGTGGTCATGG		480
		TACTCCTCTCTTTAATTGAGGTGTGTGGTCATGG		1098
		CTACCATTGTAGGGAGTGCAGCCTTCAACATGTT(		540
		CTACCATTGTAGGGAGTGCAGCCTTCAACATGTT		1158
		TGATCCCAGACGGAGAGACTCGCAAGATCAAGCA'		600
		TGATCCCAGACGGAGAGACTCGCAAGATCAAGCA!		1218
		CTTGGAGTATCTTTGCCTACATCTGGCTCTATAT(		660
		CTTGGAGTATCTTTGCCTACATCTGGCTCTATAT(		1278
		TGGTCCAGGTTTGGGAAGGCCTCCTCACTCTCTT		720
		TGGTCCAGGTTTGGGAAGGCCTCCTCACTCTCTT		1338
		CCTGGGTGGCAGATAAACGACTGCTCTTCTACAAA		780
		CCTGGGTGGCAGATAAACGACTGCTCTTCTACAA		1398
		ACAAACACCGAGGAATTATCATAGAGACAGAGGGG		840
		ACAAACACCGAGGAATTATCATAGAGACAGAGGG		1458
		ATGGGAAAATGATGAATTCCCATTTTCTAGATGG		900
				1518
C	中でみて中でででできる。	<b>ス እ</b> ርጥርር እጥር እርጥር ር ር ር ር ሊር እር እር እጥር እጥር ር ር ር ሊጥ	стс	960

```
1519 CTGGTGCCCCTGGAAGGGAAGGAAGTGGATGAGTCCCGCAGAGAGATGATCCGGATTCTC 1578
Db
          961 AAGGATCTGAA 971
Qу
              1579 AAGGATCTGAA 1589
Db
RESULT 12
AK048160
LOCUS
            AK048160
                                    3573 bp
                                               mRNA
                                                       linear
                                                              HTC 20-SEP-2003
DEFINITION
            Mus musculus 16 days embryo head cDNA, RIKEN full-length enriched
            library, clone:C130038C08 product:solute carrier family 8
            (sodium/calcium exchanger), member 1, full insert sequence.
ACCESSION
            AK048160
VERSION
            AK048160.1 GI:26339181
KEYWORDS
            HTC; CAP trapper.
SOURCE
            Mus musculus (house mouse)
  ORGANISM Mus musculus
            Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
            Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
REFERENCE
            Carninci, P. and Hayashizaki, Y.
  AUTHORS
            High-efficiency full-length cDNA cloning
  TITLE
            Meth. Enzymol. 303, 19-44 (1999)
  JOURNAL
            99279253
  MEDLINE
            10349636
   PUBMED
REFERENCE
            Carninci, P., Shibata, Y., Hayatsu, N., Sugahara, Y., Shibata, K.,
  AUTHORS
            Itoh, M., Konno, H., Okazaki, Y., Muramatsu, M. and Hayashizaki, Y.
            Normalization and subtraction of cap-trapper-selected cDNAs to
  TITLE
            prepare full-length cDNA libraries for rapid discovery of new genes
            Genome Res. 10 (10), 1617-1630 (2000)
  JOURNAL
            20499374
  MEDLINE
            11042159
   PUBMED
REFERENCE
            Shibata, K., Itoh, M., Aizawa, K., Nagaoka, S., Sasaki, N., Carninci, P.,
  AUTHORS
            Konno, H., Akiyama, J., Nishi, K., Kitsunai, T., Tashiro, H., Itoh, M.,
            Sumi, N., Ishii, Y., Nakamura, S., Hazama, M., Nishine, T., Harada, A.,
            Yamamoto, R., Matsumoto, H., Sakaguchi, S., Ikegami, T., Kashiwagi, K.,
            Fujiwake, S., Inoue, K., Togawa, Y., Izawa, M., Ohara, E., Watahiki, M.,
            Yoneda, Y., Ishikawa, T., Ozawa, K., Tanaka, T., Matsuura, S., Kawai, J.,
            Okazaki, Y., Muramatsu, M., Inoue, Y., Kira, A. and Hayashizaki, Y.
            RIKEN integrated sequence analysis (RISA) system--384-format
  TITLE
            sequencing pipeline with 384 multicapillary sequencer
            Genome Res. 10 (11), 1757-1771 (2000)
  JOURNAL
            20530913
  MEDLINE
            11076861
   PUBMED
REFERENCE
  AUTHORS
            The RIKEN Genome Exploration Research Group Phase II Team and the
            FANTOM Consortium.
            Functional annotation of a full-length mouse cDNA collection
  TITLE
            Nature 409, 685-690 (2001)
  JOURNAL
REFERENCE
            The FANTOM Consortium and the RIKEN Genome Exploration Research
  AUTHORS
            Group Phase I & II Team.
```

Analysis of the mouse transcriptome based on functional annotation

TITLE

```
of 60,770 full-length cDNAs
            Nature 420, 563-573 (2002)
  JOURNAL
               (bases 1 to 3573)
REFERENCE
            Adachi, J., Aizawa, K., Akimura, T., Arakawa, T., Bono, H., Carninci, P.,
  AUTHORS
            Fukuda, S., Furuno, M., Hanagaki, T., Hara, A., Hashizume, W.,
            Hayashida, K., Hayatsu, N., Hiramoto, K., Hiraoka, T., Hirozane, T.,
            Hori, F., Imotani, K., Ishii, Y., Itoh, M., Kagawa, I., Kasukawa, T.,
            Katoh, H., Kawai, J., Kojima, Y., Kondo, S., Konno, H., Kouda, M.,
            Koya, S., Kurihara, C., Matsuyama, T., Miyazaki, A., Murata, M.,
            Nakamura, M., Nishi, K., Nomura, K., Numazaki, R., Ohno, M., Ohsato, N.,
            Okazaki, Y., Saito, R., Saitoh, H., Sakai, C., Sakai, K., Sakazume, N.,
            Sano, H., Sasaki, D., Shibata, K., Shinagawa, A., Shiraki, T.,
            Sogabe, Y., Tagami, M., Tagawa, A., Takahashi, F., Takaku-Akahira, S.,
            Takeda, Y., Tanaka, T., Tomaru, A., Toya, T., Yasunishi, A.,
            Muramatsu, M. and Hayashizaki, Y.
            Direct Submission
  TITLE
            Submitted (16-JUL-2001) Yoshihide Hayashizaki, The Institute of
  JOURNAL
            Physical and Chemical Research (RIKEN), Laboratory for Genome
            Exploration Research Group, RIKEN Genomic Sciences Center (GSC),
            RIKEN Yokohama Institute; 1-7-22 Suehiro-cho, Tsurumi-ku, Yokohama,
            Kanagawa 230-0045, Japan (E-mail:genome-res@gsc.riken.go.jp,
            URL: http://genome.gsc.riken.go.jp/, Tel:81-45-503-9222,
            Fax:81-45-503-9216)
            cDNA library was prepared and sequenced in Mouse Genome
COMMENT
            Encyclopedia Project of Genome Exploration Research Group in Riken
            Genomic Sciences Center and Genome Science Laboratory in RIKEN.
            Division of Experimental Animal Research in Riken contributed to
            prepare mouse tissues.
            Please visit our web site for further details.
            URL:http://genome.gsc.riken.go.jp/
            URL: http://fantom.gsc.riken.go.jp/.
FEATURES
                     Location/Qualifiers
                      1. .3573
     source
                      /organism="Mus musculus"
                      /mol type="mRNA"
                      /strain="C57BL/6J"
                     /db xref="FANTOM DB:C130038C08"
                      /db xref="MGI:2414212"
                     /db xref="taxon:10090"
                      /clone="C130038C08"
                      /tissue type="head"
                      /clone lib="RIKEN full-length enriched mouse cDNA library"
                      /dev stage="16 days embryo"
     CDS
                      <1. .2122
                      /note="unnamed protein product; putative
                     solute carrier family 8 (sodium/calcium exchanger), member
                      1 (MGD|MGI:107956, GB|NM 011406, evidence: BLASTN, 99%,
                     match=1583)"
                      /codon start=2
                      /protein id="BAC33262.1"
                      /db xref="GI:26339182"
                      /translation="EITIKKPNGETTKTTVRIWNETVSNLTLMALGSSAPEILLSVIE
                      VCGHNFTAGDLGPSTIVGSAAFNMFIIIALCVYVVPDGETRKIKHLRVFFVTAAWSIF
                      AYTWLYIILSVSSPGVVEVWEGLLTFFFFPICVVFAWVADRRLLFYKYVYKRYRAGKQ
                      RGMIIEHEGDRPASKTEIEMDGKVVNSHVDNFLDGALVLEVDERDQDDEEARREMARI
                     \verb|LKELKQKHPEKEIEQLIELANYQVLSQQQKSRAFYRIQATRLMTGAGNILKRHAADQA|
                      RKAVSMHEVNMEMAENDPVSKIFFEQGTYQCLENCGTVALTIMRRGGDLSTTVFVDFR
```

TEDGTANAGSDYEFTEGTVIFKPGETQKEIRVGIIDDDIFEEDENFLVHLSNVRVSSD VSEDGILESNHASSIACLGSSSTATITIFDDDHAGIFTFEEPVTHVSESIGIMEVKVL RTSGARGNVIIPYKTIEGTARGGGEDFEDTCGELEFQNDEIVKTISVKVIDDEEYEKN KTFFIEIGEPRLVEMSEKKGGFTLTEEYDDKQPLTSKEEEERRIAEMGRPILGEHTKL EVIIEESYEFKSTVDKLIKKTNLALVVGTNSWREQFIEAITVSAGEDDDDDECGEEKL PSCFDYVMHFLTVFWKVLFAFVPPTEYWNGWACFIVSILMIGLLTAFIGDLASHFGCT IGLKDSVTAVVFVALGTSVPGPTL"

#### ORIGIN

	ocal	34.3%; Score 948.4; DB 11; Length 3573; Similarity 67.8%; Pred. No. 9.6e-222; 4; Conservative 0; Mismatches 616; Indels 66; Gaps	5;
Macche	5 143	4; Conservative 0; Mismatches 616; Indexs 66; Gaps	٠,
QУ	331	GAGGTGACAATTAAGAAACCCAATGGAGAAACCAGCACCACCACTATTCGGGTCTGGAAT	390
Db	2	GAAATAACGATAAAGAAACCGAATGGAGAGACCACCAAGACGACGGTGAGAATCTGGAAC	61
Qy	391	GAAACTGTCTCCAACCTGACCCTTATGGCCCTGGGTTCCTCTGCTCCTGAGATACTCCTC	450
Db	62	GAGACTGTGTCGAACCTGACCTTGATGGCCCTGGGATCTTCTGCTCCTGAGATTCTCCTG	121
Qy	451	TCTTTAATTGAGGTGTGGTCATGGGTTCATTGCTGGTGATCTGGGACCTTCTACCATT	510
Db	122	TCAGTCATTGAAGTGTGCGGCCATAACTTCACCGCAGGGGACCTGGGTCCCAGCACCATC	181
Qу	511	GTAGGGAGTGCAGCCTTCAACATGTTCATCATCATTGGCATCTGTGTCTACGTGATCCCA	570
Db	182	GTGGGAAGTGCTGCCTTTAACATGTTCATCATAATCGCACTCTGTGTTTACGTGGTCCCT	241
Qу	571	GACGGAGAGCTCGCAAGATCAAGCATCTACGAGTCTTCTTCATCACCGCTGCTTGGAGT	630
Db	242	GATGGAGACAAGGAAGATCAAGCATCTGCGTGTTCTTTGTGACAGCAGCCTGGAGC	301
Qу	631	ATCTTTGCCTACATCTGGCTCTATATGATTCTGGCAGTCTTCTCCCCTGGTGTGGTCCAG	690
Db	302	ATCTTTGCCTATACCTGGCTTTATATAATCTTGTCTGTCAGCTCTCCTGGAGTTGTGGAG	361
Qу	691	GTTTGGGAAGGCCTCCTCACTCTTCTTCTTTCCAGTGTGTCCTTCTGGCCTGGGTG	750
Db	362	GTCTGGGAAGGCTTGCTTACTTTCTTCTTTCCCATCTGCGTTGTTCTCGCGTGGGTA	421
Qу	751	GCAGATAAACGACTGCTCTTCTACAAATACATGCACAAAAAGTACCGCACAGACAAACAC	810
Db	422	GCAGACAGGCGGCTTCTCTTTTACAAGTATGTCTACAAGCGGTACAGGGCCGGCAAGCAG	481
Qу	811	CGAGGAATTATCATAGAGACAGAGGGTGACCACCCTAAGGGCATTGAGATG	861
Db	482	AGGGGGATGATCATTGAACATGAAGGAGACCAGCTTCCAAAACTGAAATCGAAATG	541
Qу	862	GATGGGAAAATGATGAATTCCCATTTTCTAGATGGGAACCTGGTGCCCCTGG	913
Db	542		601
Qу	914	AAGGGAAGGAAGTGGATGAGTCCCGCAGAGAGATGATCCGGATTCTCAAG	963
Db	602		661

Qy		GATCTGAAGCAAAAACACCCAGAGAAGGACTTAGATCAGCTGGTGGAGATGGCCAATTAC	
Db	662	GAACTTAAGCAGAAGCATCCTGAGAAAGAAATTGAGCAATTAATAGAATTAGCCAACTAC	721
Qу	1024	TATGCTCTTTCCCACCAACAGAAGAGCCGCGCCTTCTACCGTATCCAAGCCACTCGTATG	1083
Db	722	CAGGTCCTAAGTCAACAGCAGAAAAGCCGAGCATTTTACAGGATTCAAGCTACTCGCCTG	781
Qу	1084	ATGACTGGTGCAGGCAATATCCTGAAGAAACATGCAGCAGAACAAGCCAAGAAGGCCTCC	1143
Db	782	ATGACCGGAGCTGGCAACATCTTGAAGAGGCACGCAGCTGATCAAGCAAG	841
Qy	1144	AGCATGAGCGAGGTGCACACCGATGAGCCTGAGGACTTTATTTCCAAGGTCTTCTTT	1200
Db	842	AGTATGCATGAAGTCAACATGGAAATGGCTGAAAACGACCCAGTCAGT	901
Qу	1201	GACCCATGTTCTTACCAGTGCCTGGAGAACTGTGGGGCTGTACTCCTGACAGTGGTGAGG	1260
Db	902	GAGCAAGGAACATACCAGTGTCTAGAGAACTGTGGTACTGTGGCCCTCACCATTATGCGC	961
Qу	1261	AAAGGGGAGACATGTCAAAGACCATGTATGTGGACTACAAAACAGAGGATGGTTCTGCC	1320
Db	962	AGAGGGGGCGACTTGAGCACCACTGTGTTTGTTGACTTCAGGACAGAAGACGGCACAGCC	1021
Qy	1321	AATGCAGGGGCTGACTATGAGTTCACAGAGGGCACGGTGGTTCTGAAGCCAGGAGAGACC	1380
Db	1022	AATGCTGGGTCTGATTATGAATTCACGGAAGGGACTGTGATCTTCAAACCAGGGGAGACC	1081
Qу	1381	CAGAAGGAGTTCTCCGTGGGCATAATTGATGACGACATTTTTGAGGAGGATGAACACTTC	1440
Db	1082	CAGAAGGAAATCAGAGTTGGCATCATTGATGATGATATCTTTGAAGAAGATGAAAACTTC	1141
Qу	1441	TTTGTAAGGTTGAGCAATGTCCGCATAGAGGAGGAGCAGCCAGAGGAGGAGGAGGATGCCTCCA	1500
Db	1142	CTTGTGCATCTTAGCAATGTCAGAGGTCTCTTCAGATGTTTCAGAAGATGGCATACTAGAA	1201
Qу	1501	GCAATATTCAACAGTCTTCCCTTGCCTCGGGCTGTCCTAGCCTCCCCTTGTGTGGCCACA	1560
Db	1202	TCCAATCACGCTTCTTCAATTGCTTGTCTTGGGTCATCCAGCACTGCCACC	1252
Qу	1561	GTTACCATCTTGGATGATGACCATGCAGGCATCTTCACTTTTGAATGTGATACTATTCAT	1620
Db	1253	ATAACCATTTTGATGATGACCATGCAGGCATCTTTACATTTGAGGAACCCGTGACTCAC	1312
Qу	1621	GTCAGTGAGAGTATTGGTGTTATGGAGGTCAAGGTTCTGCGGACATCAGGTGCCCGGGGT	1680
Db	1313	GTGAGCGAGAGCATTGGCATCATGGAGGTGAAGGTTTTGAGAACCTCTGGAGCTCGAGGA	1372
Qу	1681	ACAGTCATCGTCCCCTTTAGGACAGTAGAAGGGACAGCCAAGGGTGGCGGTGAGGACTTT	1740
Db	1373	AATGTTATCATTCCCTACAAAACTATTGAAGGCACAGCCCGAGGTGGAGGGGAAGACTTT	1432
Qу	1741	GAAGACACATATGGGGAGTTGGAATTCAAGAATGATGAAAACTGTGAAAACCATAAGGGTT	1800
Db	1433	GAGGACACCTGTGGAGAGCTCGAATTCCAGAACGATGAAATAGTCAAAACAATATCAGTC	1492
Ov	1801	AAAATAGTAGATGAGGAGGAATACGAAAGGCAAGAGAATTTCTTCATTGCCCTTGGTGAA	1860

Db	1493	
Qу	1861	CCGAAATGGATGGAACGTGGAATATCAGATGTG 1893
Db	1553	
Qy	1894	ACAGACAGGAAGCTGACTATGGAAGAAGAGGAGGCCAAGAGGATAGCAGAGATGGGAAAG 1953
Db	1613	
Qу	1954	CCAGTATTGGGTGAACACCCCAAACTAGAAGTCATCATTGAAGAGTCCTATGAGTTCAAG 2013
Db	1673	CCCATCCTAGGCGAGCACCAAGCTGGAGGTGATCATCGAAGAGTCTTACGAATTCAAG 1732
Qу	2014	ACTACGGTGGACAAACTGATCAAGAAGACAAACCTGGCCTTGGTTGTGGGGACCCATTCC 2073
Db	1733	AGCACTGTGGACAAACTCATTAAGAAGACGAACCTGGCCCTTGTGGTGGGGACCAACAGC 1792
Qу	2074	TGGAGGGACCAGTTCATGGAGGCCATCACCGTCAGTGCAGCAGGGGATGAGGATGAGGAT 2133
Db	1793	TGGAGAGAGCAGTTTATCGAAGCCATCACTGTCAGCGCTGGGGAAGATGACGATGATGAT 1852
Qy	2134	GAATCCGGGGAGGAGGCTGCCCTCCTGCTTTGACTACGTCATGCACTTCCTGACTGTC 2193
Db	1853	GAATGTGGGGAGAAGCTGCCCTCTGTTTTGATTACGTGATGCACTTTCTCACAGTG 1912
Qу	2194	TTCTGGAAGGTGCTGTTTGCCTGTGTGCCCCCCACAGAGTACTGCCACGGCTGGGCCTGC 2253
Db	1913	TTCTGGAAGGTTCTGTTTGCCTTCGTCCCACCTACAGAATACTGGAATGGCTGGGCCTGC 1972
Qу	2254	TTCGCCGTCTCCATCCTCATCATTGGCATGCTCACCGCCATCATTGGGGACCTGGCCTCG 2313
Db	1973	TTCATTGTCTCCATCCTCATGATCGGCCTACTGACCGCCTTCATTGGAGACCTGGCTTCC 2032
Qy	2314	CACTTCGGCTGCACCATTGGTCTCAAAGATTCAGTCACAGCTGTTGTTTTCGTGGCATTT 2373
Db	2033	CACTTTGGCTGCACCATTGGTCTGAAAGATTCCGTGACTGCCGTTGTGTTTGTT
Qy	2374	GGCACCTCTGTCCCAG 2389
Db	2093	GGAACCTCGGTGCCAG 2108
RESULT 1 BX374548		
LOCUS DEFINITI	В	X374548 941 bp mRNA linear EST 08-MAY-2003 X374548 Homo sapiens NEUROBLASTOMA COT 10-NORMALIZED Homo sapiens
ACCESSIO	С	DNA clone CSODBOO6YD18 5-PRIME, mRNA sequence.
VERSION KEYWORDS	В	X374548.1 GI:30438490 ST.
SOURCE ORGANI	Н	omo sapiens (human) omo sapiens
ONGAIVI	E	ukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; ammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
REFERENC		

```
Li, W.B., Gruber, C., Jessee, J. and Polayes, D.
 AUTHORS
 TITLE
         Full-length cDNA libraries and normalization
 JOURNAL
         Unpublished (2001)
         Contact: Genoscope
COMMENT
         Genoscope - Centre National de Sequencage
         BP 191 91006 EVRY cedex - France
         Email: seqref@genoscope.cns.fr, Web : www.genoscope.cns.fr
         Library was constructed by Life Technologies, a division of
         Invitrogen. This sequence belongs to sequence cluster 7256.r For
         more information about this cluster, see
         http://www.genoscope.cns.fr/
         cqi-bin/cluster.cqi?seq=CSODB006DB09 DB1287 2&cluster=7256.r.
         Contact : Feng Liang Email : fliang@lifetech.com URL :
         http://fulllength.invitrogen.com/ InVitroGen Corporation 1600
         Faraday Avenue Genoscope sequence ID: CS0DB006DB09 DB1287 2.
FEATURES
                Location/Qualifiers
                1. .941
   source
                /organism="Homo sapiens"
                /mol type="mRNA"
                /db xref="taxon:9606"
                /clone="CS0DB006YD18"
                /tissue type="NEUROBLASTOMA COT 10-NORMALIZED"
                /clone lib="Homo sapiens NEUROBLASTOMA COT 10-NORMALIZED"
                /note="1st strand cDNA was primed with a NotI-oligo(dT)
                primer. Five prime end enriched, double-strand cDNA was
                digested with Not I and cloned into the Not I and EcoR V
                sites of the pCMVSPORT 6 vector. Library was normalized."
ORIGIN
                    32.5%;
                          Score 899.6; DB 13;
                                           Length 941;
 Query Match
 Best Local Similarity
                    97.7%; Pred. No. 4.6e-210;
                         0; Mismatches
                                      21;
                                                  1; Gaps
                                                            1;
 Matches 919; Conservative
                                          Indels
       Qу
           1 GGCCAGGTTTGGGAAGGCCTCCTCACTCTTCTTCTTTCC-GTGTGTGTCCTTCTGGCC 59
Db
       745 TGGGTGGCAGATAAACGACTGCTCTTCTACAAATACATGCACAAAAAGTACCGCACAGAC 804
Qу
           60 TGGGTGGCAGATAAACGACTGCTCTTCTACAAATACATGCACAAAAAGTACCGCACAGAC 119
Db
       805 AAACACCGAGGAATTATCATAGAGACAGAGGGTGACCACCCTAAGGGCATTGAGATGGAT 864
Qу
           120 AAACACCGAGGAATTATCATAGAGACAGGGGTGACCACCCTAAGGGCATTGAGATGGAT 179
Db
       Qу
           Db
       925 GTGGATGAGTCCCGCAGAGAGATGATCCGGATTCTCAAGGATCTGAAGCAAAAACACCCA 984
Qy
           Db
       240 GTGGATGAGTCCCGCAGAGAGATGATCCGGATTCTCAAGGATCTGAAGCAAAAACACCCA 299
       985 GAGAAGGACTTAGATCAGCTGGTGGAGATGGCCAATTACTATGCTCTTTCCCACCAACAG 1044
Qу
```

300 GAGAAGGACTTAGATCAGCTGGTGGAGATGGCCAATTACTATGCTCTTTCCCACCAACAG 359

Db

~1	5 AAGAGCCGCGCCTTCTACCGTATCCAAGCCACTCGTATGATGACTGGTGCAGGCAATATC 1104
Db 30	0 AAGAGCCGCGCCTTCTACCGTATCCAAGCCACTCGTATGATGACTGGTGCAGGCAATATC 419
Qy 110	5 CTGAAGAAACATGCAGCAGAACAAGCCAAGAAGGCCTCCAGCATGAGCGAGGTGCACACC 1164
Db 42	0 CTGAAGAACATGCAGCAGAACAAGCCAAGAAGGCCTCCAGCATGAGCGAGGTGCACACC 479
Qy 116	5 GATGAGCCTGAGGACTTTATTTCCAAGGTCTTCTTTGACCCATGTTCTTACCAGTGCCTG 1224
Db 48	0 GATGAGCCTGAGGACTTTATTTCCAAGGTCTTCTTTGACCCATGTTCTTACCAGTGCCTG 539
Qy 122	5 GAGAACTGTGGGGCTGTACTCCTGACAGTGGTGAGGAAAGGGGGGAGACATGTCAAAGACC 1284
Db 54	0 GAGAACTGTGGGGCTGTACTCCTGACAGTGGTGAGGAAAGGGGGAGACATGTCAAAGACC 599
Qy 128	5 ATGTATGTGGACTACAAAACAGAGGATGGTTCTGCCAATGCAGGGGCTGACTATGAGTTC 1344
Db 60	0 ATGTATGTGGACTACAAAACAGAGGATGGTTCTGCCAATGCAGGGGCTGACTATGAGTTC 659
Qy 134	5 ACAGAGGGCACGGTGGTTCTGAAGCCAGGAGAGACCCAGAAGGAGTTCTCCGTGGGCATA 1404
Db 66	0 ACAGAGGCACGGTGGTTCTGAAGCCAGGAGAGACCCAGAAGGAGTTCTCCGTGGGCATA 719
Qy 140	5 ATTGATGACGACATTTTTGAGGAGGATGAACACTTCTTTGTAAGGTTGAGCAATGTCCGC 1464
Db 72	0 ATTGATGACGACATTTTTGAGGAGGATGAACACTTCTTTGNTAGGTTGAGCAATGTCCGC 779
Qy 146	5 ATAGAGGAGGAGCAGCCAGAGGAGGGGGATGCCTCCAGCAATATTCAACAGTCTTCCCTTG 1524
Db 78	0 ATAGAGGAGCAGCCAGAGGAGGGGATGCCTNNCAGCATATTCAAACAGTCTTCCTTG 839
Qy 152	5 CCTCGGGCTGTCCTAGCCTCCCCTTGTGTGGCCACAGTTACCATCTTGGATGATGACCAT 1584
Db 84	0 CCTCGGGCTGTCCTAGCCTNCCCTTGNGTGGNCACAGTTACCATCTTGGATGATGACCAT 899
Qy 158	5 GCAGGCATCTTCACTTTTGAATGTGATACTATTCATGTCAG 1625
Db 90	0 GCNAGCATCTTCACTTTTGAATGTGATACTATTCATGTCAG 940
RESULT 14 AY408695 LOCUS DEFINITION  ACCESSION VERSION KEYWORDS SOURCE ORGANISM  REFERENCE AUTHORS	AY408695  AY408695  Mus musculus HCM3309 gene, VIRTUAL TRANSCRIPT, partial sequence, genomic survey sequence.  AY408695  AY408695.1 GI:39764666  GSS.  Mus musculus (house mouse)  Mus musculus  Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.  1 (bases 1 to 2515)  Clark, A.G., Glanowski, S., Nielson, R., Thomas, P., Kejariwal, A.,  Todd, M.A., Tanenbaum, D.M., Civello, D.R., Lu, F., Murphy, B.,  Ferriera, S., Wang, G., Zheng, X.H., White, T.J., Sninsky, J.J.,

```
TITLE
         Inferring nonneutral evolution from human-chimp-mouse orthologous
         gene trios
         Science 302 (5652), 1960-1963 (2003)
 JOURNAL
  PUBMED
         14671302
REFERENCE
            (bases 1 to 2515)
 AUTHORS
         Clark, A.G., Glanowski, S., Nielson, R., Thomas, P., Kejariwal, A.,
         Todd, M.A., Tanenbaum, D.M., Civello, D.R., Lu, F., Murphy, B.,
         Ferriera, S., Wang, G., Zheng, X.H., White, T.J., Sninsky, J.J.,
         Adams, M.D. and Cargill, M.
 TITLE
         Direct Submission
 JOURNAL
         Submitted (16-NOV-2003) Celera Genomics, 45 West Gude Drive,
         Rockville, MD 20850, USA
COMMENT
         This sequence was made by sequencing genomic exons and ordering
         them based on alignment.
FEATURES
                Location/Qualifiers
                1. .2515
    source
                /organism="Mus musculus"
                /mol type="genomic DNA"
                /db xref="taxon:10090"
                <1. .>2515
    gene
                /locus tag="HCM3309"
ORIGIN
                    31.6%; Score 874.8; DB 29;
 Query Match
                                           Length 2515;
 Best Local Similarity
                    63.9%; Pred. No. 1.1e-203;
 Matches 1348; Conservative
                          0; Mismatches 708; Indels
                                                  52; Gaps
                                                             6;
        Qу
           Db
       751 GCAGATAAACGACTGCTCTTCTACAAATACATGCACAAAAAGTACCGCACAGACAAACAC 810
Qу
           1111111111111111
        486 GCGGACAAGCGACTGCTCTTCTACAAGTACGTGTACAAGCGCTACCGCACCGACCCTCGC 545
Db
        Qу
            546 AGTGGAATCATCGGGGCAGAGGGAGACCCACCCAAGAGCATCGAGCTGGACGGCACA 605
Db
        871 ATGATGAATTCCCATTTTCTAGATG-----
                                     ----GGAACCTGGTGCCCCTGGAAGGG 918
Qу
                   11 1 1
                                         1 1
                                                606 TTCGTGGGCACTGAGGTCCCTGGCGAGCTGGGCGCATTGGGCACAGGTCCTGCTGAGGCG 665
Db
        919 AAGGAAGTGGATGAGTCCCGCAGAGAGATGATCCGGATTCTCAAGGATCTGAAGCAAAAA 978
Qу
             111 | 1111
                        666 CGTGAACTAGATGCCAGCCGGCGTGAGGTCATCCAGATCCTTAAGGACTTGAAGCAGAAG 725
Db
        979 CACCCAGAGAAGGACTTAGATCAGCTGGTGGAGATGGCCAATTACTATGCTCTTTCCCAC 1038
Qу
           Db
        726 CACCCGGATAAGGACCTGGAGCAGCTGATGGGCATCGCCAAGTACTATGCACTGCTGCAC 785
       1039 CAACAGAAGAGCCGCCCTTCTACCGTATCCAAGCCACTCGTATGATGACTGGTGCAGGC 1098
Qу
           786 CAGCAGAAGAGCCGCGCCTTCTACCGCATCCAGGCCACGCGGCTGATGACAGGTGCGGGC 845
Db
       1099 AATATCCTGAAGAAACATGCAGCAGAACAAGCCAAGAAGGCCTCCAGCATGAGCGAGGTG 1158
Qу
```

Adams, M.D. and Cargill, M.

Db	846		905
QУ	1159	CACACCGATGAGCCTGAGGACTTTATTTCCAAGGTCTTCTTTGACCCATGTTCTTACCAG	1218
Db	906		962
Qу	1219	TGCCTGGAGAACTGTGGGGCTGTACTCCTGACAGTGGTGAGGAAAGGGGGAGACATGTCA	1278
Db	963	TGCCTGGAGAACTGCGGGTCAGTGCTGCTGTCCGTGGCTTGCCAGGGTGGTGAGGGCAAC	1022
QУ	1279	AAGACCATGTATGTGGACTACAAAACAGAGGATGGTTCTGCCAATGCAGGGGCTGACTAT	1338
Db	1023		1082
Qy	1339	GAGTTCACAGAGGGCACGGTGGTTCTGAAGCCAGGAGAGCCCAGAAGGAGTTCTCCGTG	1398
Db	1083	GAGTACAGCGAGGCACACTGGTGTTCAAGCCCGGGGAGACGCAGAAGGACCTGCGCATC	1142
QУ	1399	GGCATAATTGATGACGACATTTTTGAGGAGGATGAACACTTCTTTGTAAGGTTGAGCAAT	1458
Db	1143	GGTATCATCGACGACGACATCTTCGAGGAGGACGAGCACTTCTTCGTGAGGCTGCTGAAC	1202
QУ	1459	GTCCGCATAGAGGAGGAGCAGCCAGAGGAGGGGGATGCCTCCAGCAATATTCAACAGTCTT	1518
Db	1203		1247
Qу	1519	CCCTTGCCTCGGGCTGTCCTAGCCTCCCCTTGTGTGGCCACAGTTACCATCTTGGATGAT	1578
Db	1248	GGGCGCCCAAGGGGCGCTGCTGGCCACTGTCACCATCCTGGACGAC	1307
Qу	1579	GACCATGCAGGCATCTTCACTTTTGAATGTGATACTATTCATGTCAGTGAGAGTATTGGT	1638
Db	1308	GACCACGCGGGCATCTTCTCCTTCCAGGACCGCCTGCTGCATGTGAGCGAGTGCATGGGC	1367
Qy	1639	GTTATGGAGGTCAAGGTTCTGCGGACATCAGGTGCCCGGGGTACAGTCATCGTCCCCTTT	1698
Db	1368	ACTGTGGATGTGCGCGTGGTTCGCAGCTCGGGCGCCCGTGGCACTGTACGCCTCCCCTAC	1427
QУ	1699	AGGACAGTAGAAGGGACAGCCAAGGGTGGCGGTGAGGACTTTGAAGACACATATGGGGAG	1758
Db	1428	CGCACAGTGGACGCCCGTGGCGGTGGTGTACATTACGAGGATGCTTGTGGAGAG	1487
Qу	1759	TTGGAATTCAAGAATGATGAAAACTGTGAAAACCATAAGGGTTAAAATAGTAGATGAGGAG	1818
Db	1488	CTGGAGTTCGGCGATGATGAGAC-CAGAAAACTCTTCAGGTCAAGATAGTGGATGATGAA	1546
QУ	1819	GAATACGAAAGGCAAGAGAATTTCTTCATTGCCCTTGGTGAACCGAAATGGATGG	1878
Db	1547	GAGTATGAGAAGAAGGACAACTTCTTCATTGAGCTGGGCCAGCCCCAGTGGCTTAAGCGA	1606
Qу	1879	GGAATATCAGATGTGACAGACAGGAAGCTGACTATGGAAGAA	1920
Db	1607	GGCATCTCAGNNNNNNNNNNNNNNNNNNNNNNNNNNNNNN	1666
QУ	1921	GAGGAGGCCAAGAGGATAGCAGAGATGGGAAAGCCAGTATTGGGTGAACACCCCAAACTA	1980

מע	1001	GAGGAGGCCCAGAGGATAGCAGAGATGGGCAAGCCAGTTCTTGGGGGAGAACAATCGCCTC	1/26
Qу	1981	GAAGTCATCATTGAAGAGTCCTATGAGTTCAAGACTACGGTGGACAAACTGATCAAGAAG	2040
Db	1727	GAGGTCATCGAGGAGTCTTATGACTTTAAGNNNNNNNNNN	1786
Qу	2041	${\tt ACAAACCTGGCCTTGGTTGTGGGGACCCATTCCTGGAGGGACCAGTTCATGGAGGCCATC}$	2100
Db	1787	иимиимиимиимиимиимиимиимиимиимиимиимиим	1846
Qу	2101	ACCGTCAGTGCAGCAGGGGATGAGGATGAGGATGAATCCGGGGAGGAGGAGGCTGCCC	2157
Db	1847	NNNNNNNNNNNGGGACGAGGAGGAGGATGAGCCTCGTGAGGAGCGGCTGCCG	1906
Qу	2158	TCCTGCTTTGACTACGTCATGCACTTCCTGACTGTCTTCTGGAAGGTGCTGTTTGCCTGT	2217
Db	1907	TCCTGCTTTGACTACGTGATGCACTTCCTGACGGTATTCTGGAAAGTTCTATTCGCCTGC	1966
Qу	2218	GTGCCCCCACAGAGTACTGCCACGGCTGGGCCTGCTTCGCCGTCTCCATCCTCATCATT	2277
Db	1967	GTTCCACCCACGGAGTACTGCAATGGCTGGGCCTGCTTTGGTGTCTGCATCCTGGTCATT	2026
Qу	2278	GGCATGCTCACCGCCATCATTGGGGACCTGGCCTCGCACTTCGGCTGCACCATTGGTCTC	2337
Db	2027	GGTGTGCTCACTGCCCTCATCGGAGACCTGGCCTCACACTTTGGGTGCACCGTGGGCCTC	2086
Qy .	2338	AAAGATTCAGTCACAGCTGTTGTTTTCGTGGCATTTTGGCACCTCTGTCCCAGATACGTTT	2397
Db	2087	AAGGACTCAGTCAACGCCGTGGTCTTCGTAGCCCTGGGCACCTCCATCCCTGACACGTTC	2146
QУ	2398	GCCAGCAAAGCTGCCCCTCCAGGATGTATATGCAGACGCCTCCATTGGCAACGTGACG	2457
Db	2147	GCCAGCAAGGTGGCCGCGCTGCAGGACCAGTGTGCCGACGCGTCCATCGGTAACGTGACC	2206
Qу	2458	GGCAGCAACGCCGTCAATGTCTTCCTGGGCATCGGCCTGGCCTGGTCCGTGGCCGCCATC	2517
Db	2207	GGCTCCAATGCGGTGAACGTGTTCCTGGGCCTGGGTGGCCTGGTCGGTGGCAGCGGTG	2266
Qу	2518	TACTGGGCTCTGCAGGGACAGGAGTTCCACGTGTCGGCCGGC	2577
Db	2267	TACTGGGCGGTGCAGGCTCCCCTTCGAGGTGCGTGCAGGCACGCTGGCCTTCTCGGTC	2326
Qy	2578	ACCCTCTTCACCATCTTTGCATTTGTCTGCATCAGCGTGCTCTTGTACCGAAGGCGGCCG	2637
Db	2327	ACGCTGTTCACCGTCTTCGCCTTCGTGTGCATCGCAGTGCTGTTGTACCGGCCGG	2386
Qу	2638	CACCTGGGAGGGGAGCTTGGTGGCCCCCGTGGCTGCAAGCTCGCCACAACATGGCTCTTT	2697
Db	2387	CAGATTGGCGGCGAGCTGGGCGGCCCGCGGGGACCCAAGCTGGCCACCACCGCTCTCTTC	2446
Qу	2698	GTGAGCCTGTGGCTCCTCTACATACTCTTTGCCACACTAGAGGCCTATTGCTACATCAAG	2757
Db	2447	CTGGGCCTCTGGTTCCTCTACATTCTCTCTCCAGCCTGGAGGCTTACTGCCACATCCGG	2506
Qу	2758	GGGTTCTA 2765	
Db	2507	GGCTTCTA 2514	

```
RESULT 15
BI913344
                                                               EST 16-OCT-2001
LOCUS
           BI913344
                                    887 bp
                                              mRNA
                                                      linear
DEFINITION
           603178823F1 NIH MGC 121 Homo sapiens cDNA clone IMAGE:5243308 5',
ACCESSION
           BI913344
           BI913344.1 GI:16177710
VERSION
KEYWORDS
           EST.
SOURCE
           Homo sapiens (human)
  ORGANISM Homo sapiens
           Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
           Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
REFERENCE
               (bases 1 to 887)
           NIH-MGC http://mgc.nci.nih.gov/.
 AUTHORS
           National Institutes of Health, Mammalian Gene Collection (MGC)
  TITLE
  JOURNAL
           Unpublished (1999)
           Contact: Robert Strausberg, Ph.D.
COMMENT
           Email: cgapbs-r@mail.nih.gov
           Tissue Procurement: Life Technologies, Inc.
             cDNA Library Preparation: Life Technologies, Inc.
             cDNA Library Arrayed by: The I.M.A.G.E. Consortium (LLNL)
            DNA Sequencing by: Incyte Genomics, Inc.
             Clone distribution: MGC clone distribution information can be
            found through the I.M.A.G.E. Consortium/LLNL at:
           http://image.llnl.gov
            Plate: LLAM11613 row: m column: 05
           High quality sequence stop: 782.
FEATURES
                    Location/Qualifiers
                    1. .887
     source
                    /organism="Homo sapiens"
                    /mol type="mRNA"
                    /db xref="taxon:9606"
                    /clone="IMAGE: 5243308"
                    /lab host="DH10B"
                    /clone lib="NIH MGC 121"
                    /note="Organ: brain; Vector: pCMV-SPORT6; Site 1: NotI;
                    Site 2: EcoRV (destroyed); RNA source anonymous pool of 3
                    fetal brains, female age 20 weeks, female age 24 weeks,
                    and male age 26 weeks. Library is oligo-dT primed and
                    directionally cloned (EcoRV site is destroyed upon
                    cloning). Average insert size 1.7 kb, insert size range
                    0.7-3.5 kb. Library is normalized and enriched for
                    full-length clones and was constructed by C. Gruber
                     (Invitrogen). Research Genetics tracking code 017. Note:
                    this is a NIH MGC Library."
ORIGIN
                                 Score 813.8; DB 12; Length 887;
  Query Match
                         29.4%;
  Best Local Similarity
                         97.2%; Pred. No. 6.1e-189;
  Matches 860; Conservative
                                0; Mismatches
                                                 22;
                                                      Indels
                                                                3; Gaps
                                                                            3;
          916 GGGAAGGAAGTGGATGAGTCCCGCAGAGAGATGATCCGGATTCTCAAGGATCTGAAGCAA 975
Qу
              1 GGGAAGGAAGTGGATGAGTCCCGCAGAGAGATGATCCGGATTCTCAAGGATCTGAAGCAA 60
Db
```

Qу	976	AAACACCCAGAGAAGGACTTAGATCAGCTGGTGGAGATGGCCAATTACTATGCTCTTTCC	1035
Db	61	AAACACCCAGAGAAGGACTTAGATCAGCTGGTGGAGATGGCCAATTACTATGCTCTTTCC	120
Qy	1036	CACCAACAGAAGAGCCGCCCTTCTACCGTATCCAAGCCACTCGTATGATGACTGGTGCA	1095
Db	121	CACCAACAGAAGAGCCGCCCTTCTACCGTATCCAAGCCACTCGTATGATGACTGGTGCA	180
Qy	1096	GGCAATATCCTGAAGAAACATGCAGCAGAACAAGCCAAGAAGGCCTCCAGCATGAGCGAG	1155
Db	181	GGCAATATCCTGAAGAAACATGCAGCAGAACAAGCCAAGAAGGCCTCCAGCATGAGCGAG	240
Qy 	1156	GTGCACCCGATGAGCCTGAGGACTTTATTTCCAAGGTCTTCTTTGACCCATGTTCTTAC	1215
Db	241	GTGCACACCGATGAGCCTGAGGACTTTATTTCCAAGGTCTTCTTTGACCCATGTTCTTAC	300
Qу	1216	CAGTGCCTGGAGAACTGTGGGGCTGTACTCCTGACAGTGGTGAGGAAAGGGGGAGACATG	1275
Db	301	CAGTGCCTGGAGAACTGTGGGGGCTGTACTCCTGACAGTGGTGAGGAAAGGGGGAGACATG	360
Qy	1276	TCAAAGACCATGTATGTGGACTACAAAACAGAGGATGGTTCTGCCAATGCAGGGGCTGAC	1335
Db	361	TCAAAGACCATGTATGTGGACTACAAAACAGAGGATGGTTCTGCCAATGCAGGGGCTGAC	420
Qу	1336	TATGAGTTCACAGAGGGCACGGTGGTTCTGAAGCCAGGAGAGACCCAGAAGGAGTTCTCC	1395
Db	421	TATGAGTTCACAGAGGGCACGGTGGTTCTGAAGCCAGGAGAGACCCAGAAGGAGTTCTCC	480
Qу	1396	GTGGGCATAATTGATGACGACATTTTTGAGGAGGATGAACACTTCTTTGTAAGGTTGAGC	1455
Db	481	GTGGGCATAATTGATGACGACATTTTTGAGGAGGATGAACACTTCTTTGTAAGGTTGAGC	540
Qу	1456	AATGTCCGCATAGAGGAGGAGCAGCCAGAGGAGGGGGATGCCTCCAGCAATATTCAACAGT	1515
Db	541	AATGTCCGCATAGAGGAGGAGCAGCCAGAGGAGGGGGATGCCTCCAGCAATATTCAACAGT	600
Qу	1516	CTTCCCTTGCCTCGGGCTGTCCTAGCCTCCCCTTGTGTGGCCACAGTTACCATCTTGGAT	1575
Db	601	CTTCCCTTGCCTCGGGCTGTCCTAGCCTCCCCTTGTGTGGCCACAGTTACCATCTTGGAT	660
Qу		GATGACCATGCAGGCATCTTCACTTTTGAATGTGATACTATTCATGTCAGTGAGAGTATT	
Db	661	GATGACCATGCAGGCATCTTCACTTTTGAATGTGATACTATTCATGTCAGTGAGAGTA-T	719
Qу	1636	GGTGTTATGGAGGTCAAGGTTCTGCGGACATCAGGTGCCCGGGGTACAGTCATCGTCCCC	1695
Db	720	GGTGTAATGGAGGTCAAGGTTCTGCGGACATCATGTGCCCGGGGTACAGTCATCGTCCCC	779
Qу	1696	TTT-AGGACAGTAGAAGGGACAGCCAAGGGTGGCGGTGAGGACTTTGAAGACACATATGG	1754
Db	780	TTTCAGGACAGGAGAAGGGACAGCCAAGGCTGCACGCTAAGGACTTGAAGACCCATATGC	839
Qу	1755	GGAGTTGGAATTCAAGAATGATGAAACTGTGAAAACCATAAGGGT 1799	
Db	840	GGAGTTGGAATTC-CGACTGGTGAACCTGTGAACACCATCACGGT 883	

Search completed: June 25, 2004, 15:31:14 Job time: 6359.47 secs

### GenCore version 5.1.6 Copyright (c) 1993 - 2004 Compugen Ltd.

OM nucleic - nucleic search, using sw model

Run on: June 25, 2004, 04:06:20; Search time 10407.3 Seconds

(without alignments)

11519.487 Million cell updates/sec

Title: US-10-054-680-1

Perfect score: 2766

Sequence: 1 atggcgtggttaaggttgca.....gctacatcaaggggttctaa 2766

Scoring table: IDENTITY NUC

Gapop 10.0 , Gapext 1.0

Searched: 3470272 seqs, 21671516995 residues

Total number of hits satisfying chosen parameters: 6940544

Minimum DB seq length: 0

Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%

Maximum Match 100%

Listing first 45 summaries

Database : GenEmbl:\*

1: gb ba:\*

2: gb\_htg:\*

3: gb\_in:\*

4: gb om:\*

5: gb ov:\*

6: gb pat:\*

7: gb\_ph:\*

8: gb pl:\*

9: gb pr:\*

10: gb ro:\*

11: gb sts:\*

12: gb\_sy:\*

13: gb\_sy:

14: gb vi:\*

15: em ba:\*

16: em\_fun:\*

17: em\_hum:\*

18: em in:\*

19: em mu:\*

20: em\_om:\*

21: em\_or:\*

22: em\_ov:\*

23: em pat:\*

24: em\_ph:\*

25: em\_pl:\*

26: em ro:\*

27: em sts:\*

```
28: em un:*
29:
    em vi:*
    em_htg_hum:*
30:
31: em_htg_inv:*
32: em htg other:*
33: em_htg_mus:*
34: em_htg_pln:*
35: em_htg_rod:*
36: em htg mam: *
37:
    em_htg_vrt:*
38: em_sy:*
39: em htgo hum:*
    em htgo mus:*
41:
    em_htgo_other:*
```

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

#### SUMMARIES

			ð				
Re	sult		Query				
	No.	Score	Match	Length	DB	ID	Description
	1	2766	100.0	2766	6	AX496811	AX496811 Sequence
	2	2766	100.0	3812	6	AX496815	AX496815 Sequence
	3	2764.4	99.9	2966	6	AX480881	AX480881 Sequence
	4	2764.4	99.9	5250	9	AF510501	AF510501 Homo sapi
	5	2761.2	99.8	2782	6	AX476818	AX476818 Sequence
	6	2737.4	99.0	2837	9	HSA304853	AJ304853 Homo sapi
	7	2736.4	98.9	5268	9	AF510502	AF510502 Homo sapi
	8	2733.4	98.8	2781	6	AX299471	AX299471 Sequence
	9	2657.6	96.1	2840	9	HSA304852	AJ304852 Homo sapi
	10	2546.4	92.1	5146	9	AF510503	AF510503 Homo sapi
	11	2398	86.7	4640	10	BC052435	BC052435 Mus muscu
	12	2352.4	85.0	4854	10	RNU53420	U53420 Rattus norv
	13	2312.8	83.6	3838	9	HSA508602	AJ508602 Homo sapi
	14	2290.2	82.8	3435	10	AF453257	AF453257 Mus muscu
	15	1786.4	64.6	2534	9	HSNCX22	X93017 Homo sapien
	16	1784.8	64.5	126512	6	AX476820	AX476820 Sequence
	17	1784.8	64.5	145118	9	AF508982	AF508982 Homo sapi
	18	1784.8		146055	2	AC009607	AC009607 Homo sapi
	19	1784.8	64.5	206256	9	CNS01RGT	AL160191 Human chr
	20	1784.6	64.5	1863	6	AX496813	AX496813 Sequence
С	21	1546.4	55.9	183707	10	AC124384	AC124384 Mus muscu
	22	1544	55.8	1784	10	AF321404	AF321404 Mus muscu
	23	1528.8	55.3	247722	2	AC099080	AC099080 Rattus no
	24	1326.4	48.0	2814	9	AF108389	AF108389 Homo sapi
	25	1326.4	48.0	2965	9	AF107593	AF107593 Macaca mu
	26	1326	47.9	6023	9	HSM808447	BX648299 Homo sapi
	27	1316.8	47.6	3292	4	OCU52665	U52665 Oryctolagus
	28	1302.6	47.1	2805	10	AF109163	AF109163 Rattus no
	29	1301	47.0	2805	10	AF109166	AF109166 Rattus no
	30	1294.4	46.8	3037	10	RNSCEA1	X68812 R.norvegicu
	31	1277	46.2	4282	9	AB029010	AB029010 Homo sapi
	32	1270.8	45.9	3004	6	AX827772	AX827772 Sequence
	33	1270.8	45.9	3004	10	RNU08141	U08141 Rattus norv

34 35 36 37 38 39 40 41 42 43 44	1259.8 1259.8 1257.4 1257.4 1232 1230.4 1227.8 1227.8 1227 1219.6 1216.6	45.5 45.5 45.5 44.5 44.4 44.4 44.1	2773 4252 2883 3002 2874 3303 4087 4087 3126 3199 2889	10 AF503502 10 BC058704 9 AF108388 9 AF128524 10 AF109164 10 RNU04933 4 BOVEXCHANG 6 AX360315 10 RNSCEA2 4 DOGSNCE 10 AY033398	AF503502 Mus muscu BC058704 Mus muscu AF108388 Homo sapi AF128524 Homo sapi AF109164 Rattus no U04933 Rattus norv L06438 Bos taurus AX360315 Sequence X68813 R.norvegicu M57523 Dog cardiac AY033398 Rattus no
44 45	1216.6	44.0	3150	10 AY033398 4 CATSCE	AY033398 Rattus no L35846 Felis catus

## ALIGNMENTS

RESULT 1 AX496811 LOCUS DEFINITION ACCESSION VERSION KEYWORDS SOURCE ORGANISM  REFERENCE AUTHORS	AX496811 2766 bp DNA linear PAT 26-SEP-2002 Sequence 1 from Patent WO02059316. AX496811 AX496811.1 GI:23342335 . Homo sapiens (human) Homo sapiens Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.  1 Hilbun, E. and Friddle, C.J.	
TITLE JOURNAL	Human ion exchanger proteins and polynucleotides encoding the same Patent: WO 02059316-A 1 01-AUG-2002;	
OCORNAB	LEXICON GENETICS INC (US)	
FEATURES	Location/Qualifiers	
source	12766	
	/organism="Homo sapiens"	
	/mol_type="unassigned DNA"	
0DT 6T11	/db_xref="taxon:9606"	
ORIGIN		
Query Mate	ch 100.0%; Score 2766; DB 6; Length 2766; l Similarity 100.0%; Pred. No. 0;	
	766; Conservative 0; Mismatches 0; Indels 0; Gaps 0;	
	•	
Qγ	1 ATGGCGTGGTTAAGGTTGCAGCCTCTCACCTCTGCCTTCCTCCATTTTGGGCTGGTTACC 60	
_,		
Db	1 ATGGCGTGGTTAAGGTTGCAGCCTCTCACCTCTGCCTTCCTCCATTTTGGGCTGGTTACC 60	
QУ	51 TTTGTGCTCTTCCTGAATGGTCTTCGAGCAGAGGCTGGTGGCTCAGGGGGACGTGCCAAGC 120	
71	(1, 777, 777, 777, 777, 777, 777, 777, 7	
Db (	51 TTTGTGCTCTTCCTGAATGGTCTTCGAGCAGAGGCTGGTGGCTCAGGGGACGTGCCAAGC 120	
Qy 12	21 ACAGGGCAGAACAATGAGTCCTGTTCAGGGTCATCGGACTGCAAGGAGGGTGTCATCCTG 180	
Db 12	21 ACAGGGCAGAACAATGAGTCCTGTTCAGGGTCATCGGACTGCAAGGAGGGTGTCATCCTG 180	

181 CCAATCTGGTACCCGGAGAACCCTTCCCTTGGGGACAAGATTGCCAGGGTCATTGTCTAT 240

Qу

Db	181		240
Qу	241	TTTGTGGCCCTGATATACATGTTCCTTGGGGTGTCCATCATTGCTGACCGCTTCATGGCA	300
Db	241		300
Qу	301	TCTATTGAAGTCATCACCTCTCAAGAGAGGGAGGTGACAATTAAGAAACCCAATGGAGAA	360
Db	301		360
Qy	361	ACCAGCACAACCACTATTCGGGTCTGGAATGAAACTGTCTCCAACCTGACCCTTATGGCC	420
Db	361		420
Qу	421	CTGGGTTCCTCTGAGATACTCCTCTTTAATTGAGGTGTGTGGTCATGGGTTC	480
Db	421	CTGGGTTCCTCTGAGATACTCCTCTTTAATTGAGGTGTGTGGTCATGGGTTC	480
Qу	481	ATTGCTGGTGATCTGGGACCTTCTACCATTGTAGGGAGTGCAGCCTTCAACATGTTCATC	540
Db	481	ATTGCTGGTGATCTGGGACCTTCTACCATTGTAGGGAGTGCAGCCTTCAACATGTTCATC	540
Qy	541	ATCATTGGCATCTGTGTCTACGTGATCCCAGACGGAGAGACTCGCAAGATCAAGCATCTA	600
Db	541	ATCATTGGCATCTGTGTCTACGTGATCCCAGACGGAGAGACTCGCAAGATCAAGCATCTA	600
Qу	601	CGAGTCTTCTTCATCACCGCTGCTTGGAGTATCTTTGCCTACATCTGGCTCTATATGATT	660
Db	601	CGAGTCTTCTTCATCACCGCTGCTTGGAGTATCTTTGCCTACATCTGGCTCTATATGATT	660
Qу	661	CTGGCAGTCTTCTCCCCTGGTGTGGTCCAGGTTTGGGAAGGCCTCCTCACTCTTCTTC	720
Db	661	CTGGCAGTCTTCTCCCCTGGTGTGGTCCAGGTTTGGGAAGGCCTCCTCACTCTTCTTC	720
Qу	721	TTTCCAGTGTGTCCTTCTGGCCTGGGTGGCAGATAAACGACTGCTCTTCTACAAATAC	780
Db	721	TTTCCAGTGTGTCCTTCTGGCCTGGGTGGCAGATAAACGACTGCTCTTCTACAAATAC	780
Qу	781	ATGCACAAAAAGTACCGCACAGACAACACCGAGGAATTATCATAGAGACAGAGGGTGAC	840
Db	781	ATGCACAAAAAGTACCGCACAGACAAACACCGAGGAATTATCATAGAGACAGAGGGTGAC	840
Qу	841	CACCCTAAGGGCATTGAGATGGGAAAATGATGAATTCCCATTTTCTAGATGGGAAC	900
Db	841	CACCCTAAGGGCATTGAGATGGGAAAATGATGAATTCCCATTTTCTAGATGGGAAC	900
Qу	901	CTGGTGCCCCTGGAAGGAAGGAAGTGGATGAGTCCCGCAGAGAGATGATCCGGATTCTC	960
Db	901	CTGGTGCCCCTGGAAGGGAAGGAAGTGGATGAGTCCCGCAGAGAGATGATCCGGATTCTC	960
Qу	961	AAGGATCTGAAGCAAAAACACCCAGAGAAGGACTTAGATCAGCTGGTGGAGATGGCCAAT	1020
Db	961	AAGGATCTGAAGCAAAAACACCCAGAGAAGGACTTAGATCAGCTGGTGGAGATGGCCAAT	1020
Qy	1021	TACTATGCTCTTTCCCACCAACAGAAGAGCCGCGCCTTCTACCGTATCCAAGCCACTCGT	1080

Db	1021	TACTATGCTCTTTCCCACCAACAGAAGAGCCGCCCTTCTACCGTATCCAAGCCACTCGT	1080
Qy	1081	ATGATGACTGGTGCAGGCAATATCCTGAAGAAACATGCAGCAGAACAAGCCAAGAAGGCC	1140
Db	1081		1140
Qу	1141	TCCAGCATGAGCGAGGTGCACACCGATGAGCCTGAGGACTTTATTTCCAAGGTCTTCTTT	1200
Db	1141	TCCAGCATGAGCGAGGTGCACACCGATGAGCCTGAGGACTTTATTTCCAAGGTCTTCTTT	1200
Qу	1201	GACCCATGTTCTTACCAGTGCCTGGAGAACTGTGGGGCTGTACTCCTGACAGTGGTGAGG	1260
Db	1201	GACCCATGTTCTTACCAGTGCCTGGAGAACTGTGGGGGCTGTACTCCTGACAGTGGTGAGG	1260
Qу	1261	AAAGGGGGAGACATGTCAAAGACCATGTATGTGGACTACAAAACAGAGGATGGTTCTGCC	1320
Db	1261	AAAGGGGGAGACATGTCAAAGACCATGTATGTGGACTACAAAACAGAGGATGGTTCTGCC	1320
Qу	1321	AATGCAGGGGCTGACTATGAGTTCACAGAGGGCACGGTGGTTCTGAAGCCAGGAGAGCC	1380 .
Db	1321	AATGCAGGGGCTGACTATGAGTTCACAGAGGGCACGGTGGTTCTGAAGCCAGGAGAGACC	1380
Qy	1381	CAGAAGGAGTTCTCCGTGGGCATAATTGATGACGACATTTTTGAGGAGGATGAACACTTC	1440
Db	1381	CAGAAGGAGTTCTCCGTGGGCATAATTGATGACGACATTTTTGAGGAGGATGAACACTTC	1440
Qy	1441	TTTGTAAGGTTGAGCAATGTCCGCATAGAGGAGGAGCAGCCAGAGGAGGAGGGATGCCTCCA	1500
Db	1441	TTTGTAAGGTTGAGCAATGTCCGCATAGAGGAGGAGCAGCCAGAGGAGGAGGGATGCCTCCA	1500
Qу	1501	GCAATATTCAACAGTCTTCCCTTGCCTCGGGCTGTCCTAGCCTCCCCTTGTGTGGCCACA	1560.
Db	1501	GCAATATTCAACAGTCTTCCCTTGCCTCGGGCTGTCCTAGCCTCCCCTTGTGTGGCCACA	1560
Qy	1561	GTTACCATCTTGGATGATGACCATGCAGGCATCTTCACTTTTGAATGTGATACTATTCAT	1620
Db	1561	GTTACCATCTTGGATGATGACCATGCAGGCATCTTCACTTTTGAATGTGATACTATTCAT	1620
Qу	1621	GTCAGTGAGAGTATTGGTGTTATGGAGGTCAAGGTTCTGCGGACATCAGGTGCCCGGGGT	1680
Db	1621	GTCAGTGAGAGTATTGGTGTTATGGAGGTCAAGGTTCTGCGGACATCAGGTGCCCGGGGT	1680
Qу	1681	ACAGTCATCGTCCCCTTTAGGACAGTAGAAGGGACAGCCAAGGGTGGCGGTGAGGACTTT	1740
Db	1681	ACAGTCATCGTCCCCTTTAGGACAGTAGAAGGGACAGCCAAGGGTGGCGGTGAGGACTTT	1740
Qy	1741	GAAGACACATATGGGGAGTTGGAATTCAAGAATGATGAAACTGTGAAAACCATAAGGGTT	1800
Db	1741	GAAGACACATATGGGGAGTTGGAATTCAAGAATGATGAAAACTGTGAAAACCATAAGGGTT	1800
Qу	1801	AAAATAGTAGATGAGGAGGAATACGAAAGGCAAGAGAATTTCTTCATTGCCCTTGGTGAA	1860
Db	1801	AAAATAGTAGATGAGGAGGAATACGAAAGGCAAGAGAATTTCTTCATTGCCCTTGGTGAA	1860
Qу	1861	CCGAAATGGATGGAACGTGGAATATCAGATGTGACAGACA	1920
Db	1861	CCGAAATGGATGGAACGTGGAATATCAGATGTGACAGACA	1920

•

	Qу	1921	GAGGAGGCCAAGAGATAGCAGAGATGGGAAAGCCAGTATTGGGTGAACACCCCAAACTA	1980
	Db	1921		1980
	Qy	1981	GAAGTCATCATTGAAGAGTCCTATGAGTTCAAGACTACGGTGGACAAACTGATCAAGAAG	2040
	Db	1981		2040
	Qy	2041	ACAAACCTGGCCTTGGTTGTGGGGACCCATTCCTGGAGGGACCAGTTCATGGAGGCCATC	2100
	Db	2041	ACAAACCTGGCCTTGGTTGTGGGGACCCATTCCTGGAGGGACCAGTTCATGGAGGCCATC	2100
	Qy	2101	ACCGTCAGTGCAGCAGGGATGAGGATGAGGATGAATCCGGGGAGGAGAGGCTGCCCTCC	2160
	Db	2101		2160
	Qy	2161	TGCTTTGACTACGTCATGCACTTCCTGACTGTCTTCTGGAAGGTGCTGTTTGCCTGTGTG	2220
	Db	2161		2220
	Qу	2221	CCCCCACAGAGTACTGCCACGGCTGGGCCTGCTTCGCCGTCTCCATCCTCATCATTGGC	2280
	Db	2221		2280
	Qy	2281	ATGCTCACCGCCATCATTGGGGACCTGGCCTCGCACTTCGGCTGCACCATTGGTCTCAAA	2340
	Db	2281		2340
	Qу	2341	GATTCAGTCACAGCTGTTGTTTTCGTGGCATTTGGCACCTCTGTCCCAGATACGTTTGCC	2400
	Db	2341		2400
	Qy	2401	AGCAAAGCTGCTCCCAGGATGTATATGCAGACGCCTCCATTGGCAACGTGACGGGC	2460
	Db	2401		2460
	Qy	2461	AGCAACGCCGTCAATGTCTTCCTGGGCATCGGCCTGGCCTGGTCCGTGGCCGCCATCTAC	2520
	Db	2461		2520
	Qy	2521	TGGGCTCTGCAGGGACAGGAGTTCCACGTGTCGGCCGGCACACTGGCCTTCTCCGTCACC	2580
	Db	2521	TGGGCTCTGCAGGGACAGGAGTTCCACGTGTCGGCCGGCACACTGGCCTTCTCCGTCACC	2580
	Qy	2581	CTCTTCACCATCTTTGCATTTGTCTGCATCAGCGTGCTCTTGTACCGAAGGCGGCCGCAC	2640
	Db	2581		2640
·	Qy	2641	CTGGGAGGGAGCTTGGTGGCCCCCGTGGCTGCAAGCTCGCCACAACATGGCTCTTTGTG	2700
	Db	2641	CTGGGAGGGGAGCTTGGTGGCCCCCGTGGCTGCAAGCTCGCCACAACATGGCTCTTTGTG	2700
	Qy	2701	AGCCTGTGGCTCCTCTACATACTCTTTGCCACACTAGAGGCCTATTGCTACATCAAGGGG	2760
	Db	2701	AGCCTGTGGCTCCTCTACATACTCTTTGCCACACTAGAGGCCTATTGCTACATCAAGGGG	2760

```
2761 TTCTAA 2766
Qу
           111111
       2761 TTCTAA 2766
Db
RESULT 2
AX496815
                                                     PAT 26-SEP-2002
LOCUS
         AX496815
                              3812 bp
                                       DNA
                                              linear
DEFINITION
         Sequence 5 from Patent WO02059316.
ACCESSION
          AX496815
         AX496815.1 GI:23342337
VERSION
KEYWORDS
SOURCE
         Homo sapiens (human)
 ORGANISM
         Homo sapiens
         Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
         Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
REFERENCE
 AUTHORS
         Hilbun, E. and Friddle, C.J.
 TITLE
         Human ion exchanger proteins and polynucleotides encoding the same
          Patent: WO 02059316-A 5 01-AUG-2002;
 JOURNAL
         LEXICON GENETICS INC (US)
FEATURES
                 Location/Qualifiers
                 1. .3812
    source
                 /organism="Homo sapiens"
                 /mol type="unassigned DNA"
                 /db xref="taxon:9606"
ORIGIN
 Query Match
                     100.0%; Score 2766; DB 6; Length 3812;
 Best Local Similarity 100.0%; Pred. No. 0;
 Matches 2766; Conservative
                           0; Mismatches
                                                                0;
                                          0;
                                              Indels
                                                      0;
                                                          Gaps
          1 ATGGCGTGGTTAAGGTTGCAGCCTCTCACCTCTGCCTTCCTCCATTTTGGGCTGGTTACC 60
Qу
           618 ATGGCGTGGTTAAGGTTGCAGCCTCTCACCTCTGCCTTCCTCCATTTTGGGCTGGTTACC 677
Db
         61 TTTGTGCTCTTCCTGAATGGTCTTCGAGCAGAGGCTGGTGGCTCAGGGGACGTGCCAAGC 120
Qу
           678 TTTGTGCTCTTCCTGAATGGTCTTCGAGCAGAGGCTGGTGGCTCAGGGGACGTGCCAAGC 737
Db
        121 ACAGGGCAGAACAATGAGTCCTGTTCAGGGTCATCGGACTGCAAGGAGGGTGTCATCCTG 180
Qу
           738 ACAGGGCAGAACAATGAGTCCTGTTCAGGGTCATCGGACTGCAAGGAGGGTGTCATCCTG 797
Db
        181 CCAATCTGGTACCCGGAGAACCCTTCCCTTGGGGACAAGATTGCCAGGGTCATTGTCTAT 240
Qγ
           798 CCAATCTGGTACCCGGAGAACCCTTCCCTTGGGGACAAGATTGCCAGGGTCATTGTCTAT 857
Db
        241 TTTGTGGCCCTGATATACATGTTCCTTGGGGTGTCCATCATTGCTGACCGCTTCATGGCA 300
Qу
           Db
        858 TTTGTGGCCCTGATATACATGTTCCTTGGGGTGTCCATCATTGCTGACCGCTTCATGGCA 917
        301 TCTATTGAAGTCATCACCTCTCAAGAGAGGGGGGTGACAATTAAGAAACCCAATGGAGAA 360
Qу
           918 TCTATTGAAGTCATCACCTCTCAAGAGAGGGAGGTGACAATTAAGAAACCCAATGGAGAA 977
Db
```

361 ACCAGCACACCACTATTCGGGTCTGGAATGAAACTGTCTCCAACCTGACCCTTATGGCC 420

Qy

Db	978	ACCAGCACAACCACTATTCGGGTCTGGAATGAAACTGTCTCCAACCTGACCCTTATGGCC	1037
Qу	421	CTGGGTTCCTCTGAGATACTCCTCTTTAATTGAGGTGTGTGGTCATGGGTTC	480
Db	1038	CTGGGTTCCTCTGAGATACTCCTCTTTAATTGAGGTGTGTGGTCATGGGTTC	1097
Qу	481	ATTGCTGGTGATCTGGGACCTTCTACCATTGTAGGGAGTGCAGCCTTCAACATGTTCATC	540
Db	1098	ATTGCTGGTGATCTGGGACCTTCTACCATTGTAGGGAGTGCAGCCTTCAACATGTTCATC	1157
Qу	541	ATCATTGGCATCTGTGTCTACGTGATCCCAGACGGAGAGACTCGCAAGATCAAGCATCTA	600
Db	1158	ATCATTGGCATCTGTGTCTACGTGATCCCAGACGGAGAGACTCGCAAGATCAAGCATCTA	1217
Qу	601	CGAGTCTTCTTCATCACCGCTGCTTGGAGTATCTTTGCCTACATCTGGCTCTATATGATT	660
Db	1218		1277
Qу	661	CTGGCAGTCTTCTCCCCTGGTGTGGTCCAGGTTTGGGAAGGCCTCCTCACTCTCTTCTTC	720
Db	1278	CTGGCAGTCTTCTCCCCTGGTGTGGTCCAGGTTTGGGAAGGCCTCCTCACTCTTCTTC	1337
Qу	721	TTTCCAGTGTGTCCTTCTGGCCTGGGTGGCAGATAAACGACTGCTCTTCTACAAATAC	780
Db	1338	TTTCCAGTGTGTCCTTCTGGCCTGGGTGGCAGATAAACGACTGCTCTTCTACAAATAC	1397
QУ	781	ATGCACAAAAGTACCGCACAGACAAACACCGAGGAATTATCATAGAGACAGAGGGTGAC	840
Db	1398	ATGCACAAAAAGTACCGCACAGACAAACACCGAGGAATTATCATAGAGACAGAGGGTGAC	1457
Qу	841	CACCCTAAGGGCATTGAGATGGGAAAATGATGAATTCCCATTTTCTAGATGGGAAC	900
Db	1458	CACCCTAAGGGCATTGAGATGGGAAAATGATGAATTCCCATTTTCTAGATGGGAAC	1517
Qу	901	CTGGTGCCCCTGGAAGGAAGGAAGTGGATGAGTCCCGCAGAGAGATGATCCGGATTCTC	960
Db	1518	CTGGTGCCCCTGGAAGGGAAGGAAGTGGATGAGTCCCGCAGAGAGATGATCCCGGATTCTC	1577
Qу	961	AAGGATCTGAAGCAAAAACACCCAGAGAAGGACTTAGATCAGCTGGTGGAGATGGCCAAT	1020
Db	1578	AAGGATCTGAAGCAAAAACACCCAGAGAAGGACTTAGATCAGCTGGTGGAGATGGCCAAT	1637
Qу	1021	TACTATGCTCTTTCCCACCAACAGAAGAGCCGCGCCTTCTACCGTATCCAAGCCACTCGT	1080
Db	1638	TACTATGCTCTTTCCCACCAACAGAAGAGCCGCGCCTTCTACCGTATCCAAGCCACTCGT	1697
Qy	1081	ATGATGACTGGTGCAGGCAATATCCTGAAGAAACATGCAGCAGAACAAGCCAAGAAGGCC	1140
Db	1698	ATGATGACTGGTGCAGGCAATATCCTGAAGAAACATGCAGCAGAACAAGCCAAGAAGGCC	1757
Qу	1141	TCCAGCATGAGCGAGGTGCACACCGATGAGCCTGAGGACTTTATTTCCAAGGTCTTCTTT	1200
Db .	1758	TCCAGCATGAGCGAGGTGCACACCGATGAGCCTGAGGACTTTATTTCCAAGGTCTTCTTT	1817
Qу	1201	GACCCATGTTCTTACCAGTGCCTGGAGAACTGTGGGGGCTGTACTCCTGACAGTGGTGAGG	1260

Db 1818	GACCCATGTTCTTACCAGTGCCTGGAGAACTGTGGGGCTGTACTCCTGACAGTGGTGAGG	1877
	AAAGGGGGAGACATGTCAAAGACCATGTATGTGGACTACAAAACAGAGGATGGTTCTGCC	
Db 1878	AAAGGGGGAGACATGTCÁAAGACCATGTATGTGGACTACAAAACAGAGGATGGTTCTGCC	1937
Qy 1321	AATGCAGGGGCTGACTATGAGTTCACAGAGGGCACGGTGGTTCTGAAGCCAGGAGAGCC	1380
Db 1938	AATGCAGGGGCTGACTATGAGTTCACAGAGGGCACGGTGGTTCTGAAGCCAGGAGAGACC	1997
Qy 1381	CAGAAGGAGTTCTCCGTGGGCATAATTGATGACGACATTTTTGAGGAGGATGAACACTTC	1440
Db 1998	CAGAAGGAGTTCTCCGTGGGCATAATTGATGACGACATTTTTGAGGAGGATGAACACTTC	2057
Qy 1441	TTTGTAAGGTTGAGCAATGTCCGCATAGAGGAGGAGCAGCCAGAGGAGGGGGATGCCTCCA	1500
Db 2058	TTTGTAAGGTTGAGCAATGTCCGCATAGAGGAGGAGCAGCCAGAGGAGGAGGGATGCCTCCA	2117
Qy 1501	GCAATATTCAACAGTCTTCCCTTGCCTCGGGCTGTCCTAGCCTCCCCTTGTGTGGCCACA	1560
Db 2118	GCAATATTCAACAGTCTTCCCTTGCCTCGGGCTGTCCTAGCCTCCCCTTGTGTGGCCACA	2177
Qy 1561	${\tt GTTACCATCTTGGATGATGACCATGCAGGCATCTTCACTTTTGAATGTGATACTATTCAT}$	1620
Db 2178		2237
Qy 1621	GTCAGTGAGAGTATTGGTGTTATGGAGGTCAAGGTTCTGCGGACATCAGGTGCCCGGGGT	1680
Db 2238		2297
Qy 1681	ACAGTCATCGTCCCCTTTAGGACAGTAGAAGGGACAGCCAAGGGTGGCGGTGAGGACTTT	1740
Db 2298	ACAGTCATCGTCCCCTTTAGGACAGTAGAAGGGACAGCCAAGGGTGGCGGTGAGGACTTT	2357
Qy 1741	GAAGACACATATGGGGAGTTGGAATTCAAGAATGATGAAACTGTGAAAACCATAAGGGTT	1800
Db 2358	GAAGACACATATGGGGAGTTGGAATTCAAGAATGATGAAAACTGTGAAAAACCATAAGGGTT	2417
~4	AAAATAGTAGATGAGGAGGAATACGAAAGGCAAGAGAATTTCTTCATTGCCCTTGGTGAA	1860
	AAAATAGTAGATGAGGAGAATACGAAAGGCAAGAGAATTTCTTCATTGCCCTTGGTGAA	2477
Qy 1861	CCGAAATGGATGGAACGTGGAATATCAGATGTGACAGACA	1920
Db 2478	CCGAAATGGATGGAACGTGGAATATCAGATGTGACAGACA	2537
~4	GAGGAGGCCAAGAGGATAGCAGAGATGGGAAAGCCAGTATTGGGTGAACACCCCAAACTA	1980
	GAGGAGGCCAAGAGGATAGCAGAGATGGGAAAGCCAGTATTGGGTGAACACCCCAAACTA	2597
Qy 1981	GAAGTCATCATTGAAGAGTCCTATGAGTTCAAGACTACGGTGGACAAACTGATCAAGAAG	2040
Db 2598	GAAGTCATCATTGAAGAGTCCTATGAGTTCAAGACTACGGTGGACAAACTGATCAAGAAG	2657
Qy 2041	ACAAACCTGGCCTTGGTTGTGGGGACCCATTCCTGGAGGGACCAGTTCATGGAGGCCATC	2100
Db 2658	ACAAACCTGGCCTTGGTTGTGGGGACCCATTCCTGGAGGGACCAGTTCATGGAGGCCATC	2717

Qy	2101	ACCGTCAGTGCAGCAGGGGATGAGGATGAGTGAATCCGGGGAGGAGGGCTGCCCTCC	2160
Db	2718	ACCGTCAGTGCAGCAGGGATGAGGATGAATCCGGGGAGGAGAGGCTGCCCTCC	2777
Qу	2161	TGCTTTGACTACGTCATGCACTTCCTGACTGTCTTCTGGAAGGTGCTGTTTGCCTGTGTG	2220
Db	2778	TGCTTTGACTACGTCATGCACTTCCTGACTGTCTTCTGGAAGGTGCTGTTTGCCTGTGTG	2837
Qу	2221	CCCCCACAGAGTACTGCCACGGCTGGGCCTGCTTCGCCGTCTCCATCCTCATCATTGGC	2280
Db	2838	CCCCCACAGAGTACTGCCACGGCTGGGCCTGCTTCGCCGTCTCCATCCTCATTGGC	2897
Qу	2281	ATGCTCACCGCCATCATTGGGGACCTGGCCTCGCACTTCGGCTGCACCATTGGTCTCAAA	2340
Db	2898	ATGCTCACCGCCATCATTGGGGACCTGGCCTCGCACTTCGGCTGCACCATTGGTCTCAAA	2957
Qу	2341	GATTCAGTCACAGCTGTTGTTTTCGTGGCATTTGGCACCTCTGTCCCAGATACGTTTGCC	2400
Db	2958		3017
Qу	2401	AGCAAAGCTGCTCCCCCCCAGGATGTATATGCAGACGCCTCCATTGGCAACGTGACGGGC	2460
Db	3018	AGCAAAGCTGCCCTCCAGGATGTATATGCAGACGCCTCCATTGGCAACGTGACGGGC	3077
Qу	2461	AGCAACGCCGTCAATGTCTTCCTGGGCATCGGCCTGGCCTGGTCCGTGGCCGCCATCTAC	2520
Db	3078	AGCAACGCCGTCAATGTCTTCCTGGGCATCGGCCTGGCCTGGTCCGTGGCCGCCATCTAC	3137
Qу	2521	TGGGCTCTGCAGGGACAGGAGTTCCACGTGTCGGCCGGCACACTGGCCTTCTCCGTCACC	2580
Db	3138	TGGGCTCTGCAGGGACAGGAGTTCCACGTGTCGGCCGGCACACTGGCCTTCTCCGTCACC	3197
Qу	2581	CTCTTCACCATCTTTGCATTTGTCTGCATCAGCGTGCTCTTGTACCGAAGGCGGCCGCAC	2640
Db	3198	CTCTTCACCATCTTTGCATTTGTCTGCATCAGCGTGCTCTTGTACCGAAGGCGGCCGCAC	3257
Qу	2641	$\tt CTGGGAGGGGAGCTTGGTGGCCCCGTGGCTGCAAGCTCGCCACAACATGGCTCTTTGTG$	2700
Db	3258	CTGGGAGGGAGCTTGGTGGCCCCCGTGGCTGCAAGCTCGCCACAACATGGCTCTTTGTG	3317
Qу	2701	AGCCTGTGGCTCCTCTACATACTCTTTGCCACACTAGAGGCCTATTGCTACATCAAGGGG	2760
Db	3318	AGCCTGTGGCTCCTCTACATACTCTTTGCCACACTAGAGGCCTATTGCTACATCAAGGGG	3377
Qу	2761	TTCTAA 2766	
Db	3378	 TTCTAA 3383	
RESULT 3 AX480881 LOCUS DEFINITI ACCESSIO VERSION KEYWORDS	A:ON S ON A:	X480881 2966 bp DNA linear PAT 12-AUG- equence 41 from Patent WO0246415. X480881 X480881.1 GI:22217538	-2002

```
SOURCE
         Homo sapiens (human)
 ORGANISM
         Homo sapiens
         Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
         Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
REFERENCE
         Lee, E.A., Baughn, M.R., Yue, H., Ding, L., Raumann, B.E., Hafalia, A.J.,
 AUTHORS
         Khan, F.A., Nguyen, D.B., Elliott, V.S., Ramkumar, J., Walia, N.K.,
         Ison, C.H., Lu, Y., Gandhi, A.R., Warren, B.A., Duggan, B.M.,
         Tribouley, C.M., Burford, N., Lu, D.A., Lal, P.G., Yao, M.G., Xu, Y.,
         Bruns, C.M., Thangavelu, K., Swarnakar, A., Tang, Y.T., Azimzai, Y.,
         Thornton, M., Arvizu, C. and Policky, J.L.
         Transporters and ion channels
 TITLE
         Patent: WO 0246415-A 41 13-JUN-2002;
 JOURNAL
         Incyte Genomics, Inc. (US)
                 Location/Qualifiers
FEATURES
                 1. .2966
    source
                 /organism="Homo sapiens"
                 /mol type="unassigned DNA"
                 /db xref="taxon:9606"
                 /note="Incyte ID No: 5923789CB1"
ORIGIN
                     99.9%; Score 2764.4; DB 6; Length 2966;
 Query Match
                     100.0%; Pred. No. 0;
 Best Local Similarity
                           0; Mismatches
                                             Indels
                                                      0;
                                                         Gaps
                                                                0;
 Matches 2765: Conservative
         1 ATGGCGTGGTTAAGGTTGCAGCCTCTCACCTCTGCCTTCCTCCATTTTGGGCTGGTTACC 60
Qу
           201 ATGGCGTGGTTAAGGTTGCAGCCTCTCACCTCTGCCTTCCTCCATTTTGGGCTGGTTACC 260
Db
         61 TTTGTGCTCTTCCTGAATGGTCTTCGAGCAGAGGCTGGTGGCTCAGGGGACGTGCCAAGC 120
Qу
           261 TTTGTGCTCTTCCTGAATGGTCTTCGAGCAGAGGCTGGTGGCTCAGGGGACGTGCCAAGC 320
Db
        121 ACAGGGCAGAACAATGAGTCCTGTTCAGGGTCATCGGACTGCAAGGAGGGTGTCATCCTG 180
Qу
           321 ACAGGGCAGAACAATGAGTCCTGTTCAGGGTCATCGGACTGCAAGGAGGGTGTCATCCTG 380
Db
        181 CCAATCTGGTACCCGGAGAACCCTTCCCTTGGGGACAAGATTGCCAGGGTCATTGTCTAT 240
Qy
           381 CCAATCTGGTACCCGGAGAACCCTTCCCTTGGGGACAAGATTGCCAGGGTCATTGTCTAT 440
Db
        241 TTTGTGGCCCTGATATACATGTTCCTTGGGGTGTCCATCATTGCTGACCGCTTCATGGCA 300
Qy
           441 TTTGTGGCCCTGATATACATGTTCCTTGGGGTGTCCATCATTGCTGACCGCTTCATGGCA 500
Db
        301 TCTATTGAAGTCATCACCTCTCAAGAGAGGGAGGTGACAATTAAGAAACCCAATGGAGAA 360
Qy
           501 TCTATTGAAGTCATCACCTCTCAAGAGAGGGAGGTGACAATTAAGAAACCCAATGGAGAA 560
Db
        361 ACCAGCACAACCACTATTCGGGTCTGGAATGAAACTGTCTCCAACCTGACCCTTATGGCC 420
Qу
           561 ACCAGCACACCACTATTCGGGTCTGGAATGAAACTGTCTCCAACCTGACCCTTATGGCC 620
Db
        421 CTGGGTTCCTCTGCTCCTGAGATACTCCTCTCTTTAATTGAGGTGTGTGGTCATGGGTTC 480
Qу
           621 CTGGGTTCCTCTGCTCCTGAGATACTCCTCTTTTAATTGAGGTGTGTGGTCATGGGTTC 680
Db
```

Qу	481	ATTGCTGGTGATCTGGGACCTTCTACCATTGTAGGGAGTGCAGCCTTCAACATGTTCATC	540
Db	681	ATTGCTGGTGATCTGGGACCTTCTACCATTGTAGGGAGTGCAGCCTTCAACATGTTCATC	740
Qy	541	ATCATTGGCATCTGTGTCTACGTGATCCCAGACGGAGAGACTCGCAAGATCAAGCATCTA	600
Db .	741	ATCATTGGCATCTGTGTCTACGTGATCCCAGACGGAGAGACTCGCAAGATCAAGCATCTA	800
Qу	601	CGAGTCTTCTTCATCACCGCTGCTTGGAGTATCTTTGCCTACATCTGGCTCTATATGATT	660
Db	801	CGAGTCTTCTTCATCACCGCTGCTTGGAGTATCTTTGCCTACATCTGGCTCTATATGATT	860
Qу	661	CTGGCAGTCTTCTCCCCTGGTGTGGTCCAGGTTTGGGAAGGCCTCCTCACTCTCTTC	720
Db	861	CTGGCAGTCTTCTCCCCTGGTGTGGTCCAGGTTTGGGAAGGCCTCCTCACTCTTCTTC	920
Qу	721	TTTCCAGTGTGTCCTTCTGGCCTGGGTGGCAGATAAACGACTGCTCTTCTACAAATAC	780 <sup>.</sup>
Db	921	TTTCCAGTGTGTCCTTCTGGCCTGGGTGGCAGATAAACGACTGCTCTTCTACAAATAC	980
Qy	781	ATGCACAAAAGTACCGCACAGACAACACCGAGGAATTATCATAGAGACAGAGGGTGAC	840
Db	981	ATGCACAAAAAGTACCGCACAGACAAACACCGAGGAATTATCATAGAGACAGAGGGTGAC	1040
Qy	841	CACCCTAAGGGCATTGAGATGGGAAAATGATGAATTCCCATTTTCTAGATGGGAAC	900
Db	1041	CACCCTAAGGGCATTGAGATGGATGGGAAAATGATGAATTCCCATTTTCTAGATGGGAAC	1100
Qy	901	CTGGTGCCCCTGGAAGGGAAGGAAGTGGATGAGTCCCGCAGAGAGATGATCCGGATTCTC	960
Db	1101	CTGGTGCCCCTGGAAGGGAAGGAAGTGGATGAGTCCCGCAGAGAGATGATCCGGATTCTC	1160
Qу	961	AAGGATCTGAAGCAAAAACACCCAGAGAAGGACTTAGATCAGCTGGTGGAGATGGCCAAT	1020
Db		${\tt AAGGATCTGAAGCAAAAACACCCAGAGAAGGACTTAGATCAGCTGGTGGAGATGGCCAAT}$	
Qу	1021	TACTATGCTCTTTCCCACCAACAGAAGAGCCCCCCTTCTTACCGTATCCAAGCCACTCGT	1080
Db .	1221	TACTATGCTCTTTCCCACCAACAGAAGAGCCCTCCCTTCTACCGTATCCAAGCCACTCGT	1280
Qy ·	1081	ATGATGACTGGTGCAGGCAATATCCTGAAGAAACATGCAGCAGAACAAGCCAAGAAGGCC	1140
Db	1281	ATGATGACTGGTGCAGGCAATATCCTGAAGAAACATGCAGCAGAACAAGCCAAGAAGGCC	1340
Qy	1141	TCCAGCATGAGCGAGGTGCACACCGATGAGCCTGAGGACTTTATTTCCAAGGTCTTCTTT	1200
Db	1341		1400
Qy	1201	GACCCATGTTCTTACCAGTGCCTGGAGAACTGTGGGGCTGTACTCCTGACAGTGGTGAGG	1260
Db	1401		1460
Qу	1261	AAAGGGGGAGACATGTCAAAGACCATGTATGTGGACTACAAAACAGAGGATGGTTCTGCC	1320
Db	1461		1520

Qу	1321	AATGCAGGGGCTGACTATGAGTTCACAGAGGGCACGGTGGTTCTGAAGCCAGGAGAGACC	1380
Db	1521	AATGCAGGGGCTGACTATGAGTTCACAGAGGGCACGGTGGTTCTGAAGCCAGGAGAGACC	1580
Qy	1381	CAGAAGGAGTTCTCCGTGGGCATAATTGATGACGACATTTTTGAGGAGGATGAACACTTC	1440
Db	1581	CAGAAGGAGTTCTCCGTGGGCATAATTGATGACGACATTTTTGAGGAGGATGAACACTTC	1640
Qу	1441	TTTGTAAGGTTGAGCAATGTCCGCATAGAGGAGGAGCAGCCAGAGGAGGAGGGATGCCTCCA	1500
Db	1641	TTTGTAAGGTTGAGCAATGTCCGCATAGAGGAGGAGCAGCCAGAGGAGGGGATGCCTCCA	1700
QУ	1501	GCAATATTCAACAGTCTTCCCTTGCCTCGGGCTGTCCTAGCCTCCCCTTGTGTGGCCACA	1560
Db	1701	GCAATATTCAACAGTCTTCCCTTGCCTCGGGCTGTCCTAGCCTCCCCTTGTGTGGCCACA	1760
Qу	1561	GTTACCATCTTGGATGATGACCATGCAGGCATCTTCACTTTTGAATGTGATACTATTCAT	1620
Db	1761	GTTACCATCTTGGATGATGACCATGCAGGCATCTTCACTTTTGAATGTGATACTATTCAT	1820
QУ	1621	GTCAGTGAGAGTATTGGTGTTATGGAGGTCAAGGTTCTGCGGACATCAGGTGCCCGGGGT	1680
Db	1821	GTCAGTGAGAGTATTGGTGTTATGGAGGTCAAGGTTCTGCGGACATCAGGTGCCCGGGGT	1880
QУ	1681	ACAGTCATCGTCCCCTTTAGGACAGTAGAAGGGACAGCCAAGGGTGGCGGTGAGGACTTT	1740
Db	1881	ACAGTCATCGTCCCCTTTAGGACAGTAGAAGGGACAGCCAAGGGTGGCGGTGAGGACTTT	1940
QУ	1741	GAAGACACATATGGGGAGTTGGAATTCAAGAATGATGAAACTGTGAAAACCATAAGGGTT	1800
Db	1941	GAAGACACATATGGGGAGTTGGAATTCAAGAATGATGAAAACTGTGAAAACCATAAGGGTT	2000
Qy	1801	AAAATAGTAGATGAGGAGGAATACGAAAGGCAAGAGAATTTCTTCATTGCCCTTGGTGAA	1860
Db	2001	AAAATAGTAGATGAGGAGAATACGAAAGGCAAGAGAATTTCTTCATTGCCCTTGGTGAA	2060
Qу	1861	CCGAAATGGATGGAACGTGGAATATCAGATGTGACAGACA	1920
Db	2061	CCGAAATGGATGGAACGTGGAATATCAGATGTGACAGGAAGCTGACTATGGAAGAA	2120
Qy	1921	GAGGAGGCCAAGAGGATAGCAGAGATGGGAAAGCCAGTATTGGGTGAACACCCCAAACTA	1980
Db	2121	GAGGAGGCCAAGAGATAGCAGAGATGGGAAAGCCAGTATTGGGTGAACACCCCAAACTA	2180
Qу	1981	GAAGTCATCATTGAAGAGTCCTATGAGTTCAAGACTACGGTGGACAAACTGATCAAGAAG	2040
Db		GAAGTCATCATTGAAGAGTCCTATGAGTTCAAGACTACGGTGGACAAACTGATCAAGAAG	
Qу		ACAAACCTGGCCTTGGTTGTGGGGACCCATTCCTGGAGGGACCAGTTCATGGAGGCCATC	
Db	2241	ACAAACCTGGCCTTGGTTGTGGGGACCCATTCCTGGAGGGACCAGTTCATGGAGGCCATC	2300
Qу	2101	ACCGTCAGTGCAGCAGGGATGAGGATGAATCCGGGGAGGAGGGCTGCCCTCC	2160
Db	2301	ACCGTCAGTGCAGCAGGGATGAGGATGAATCCGGGGAGGAGGAGGCTGCCCTCC	2360
Qy	2161	TGCTTTGACTACGTCATGCACTTCCTGACTGTCTTCTGGAAGGTGCTGTTTGCCTGTGTG	2220

Db	2361	
Qу	2221	CCCCCCACAGAGTACTGCCACGGCTGGGCCTGCTTCGCCGTCTCCATCCTCATCATTGGC 2280
Db	2421	
Qy	2281	ATGCTCACCGCCATCATTGGGGACCTGGCCTCGCACTTCGGCTGCACCATTGGTCTCAAA 2340
Db	2481	ATGCTCACCGCCATCATTGGGGACCTGGCCTCGCACTTCGGCTGCACCATTGGTCTCAAA 2540
Qу	2341	GATTCAGTCACAGCTGTTGTTTTCGTGGCATTTGGCACCTCTGTCCCAGATACGTTTGCC 2400
Db	2541	GATTCAGTCACAGCTGTTTTTCGTGGCATTTGGCACCTCTGTCCCAGATACGTTTGCC 2600
QУ	2401	AGCAAAGCTGCTCCCAGGATGTATATGCAGACGCCTCCATTGGCAACGTGACGGGC 2460
Db	2601	AGCAAAGCTGCTCCCAGGATGTATATGCAGACGCCTCCATTGGCAACGTGACGGGC 2660
Qy	2461	AGCAACGCCGTCAATGTCTTCCTGGGCATCGGCCTGGCCTGGTCCGTGGCCGCCATCTAC 2520
Db	2661	AGCAACGCCGTCAATGTCTTCCTGGGCATCGGCCTGGCCTGGTCCGTGGCCGCCATCTAC 2720
Qу	2521	TGGGCTCTGCAGGGACAGGAGTTCCACGTGTCGGCCGGCACACTGGCCTTCTCCGTCACC 2580
Db	2721	TGGGCTCTGCAGGGACAGGAGTTCCACGTGTCGGCCGGCACACTGGCCTTCTCCGTCACC 2780
QУ	2581	CTCTTCACCATCTTTGCATTTGTCTGCATCAGCGTGCTCTTGTACCGAAGGCGGCCGCAC 2640
Db	2781	CTCTTCACCATCTTTGCATTTGTCTGCATCAGCGTGCTCTTGTACCGAAGGCGGCCGCAC 2840
Qу	2641	CTGGGAGGGAGCTTGGTGGCCCCCGTGGCTGCAAGCTCGCCACAACATGGCTCTTTGTG 2700
Db	2841	CTGGGAGGGGAGCTTGGTGGCCCCCGTGGCTGCAAGCTCGCCACAACATGGCTCTTTGTG 2900
QУ	2701	AGCCTGTGGCTCCTCTACATACTCTTTGCCACACTAGAGGCCTATTGCTACATCAAGGGG 2760
Db	2901	AGCCTGTGGCTCCTCTACATACTCTTTGCCACACTAGAGGCCTATTGCTACATCAAGGGG 2960
Qу	2761	TTCTAA 2766
Db	2961	TTCTAA 2966
RESULT 4 AF510501 LOCUS DEFINITI ACCESSIO VERSION KEYWORDS SOURCE ORGANI	ON H  ON A  A  H  SM H	F510501 5250 bp mRNA linear PRI 30-OCT-2002 omo sapiens Na+/Ca2+ exchanger isoform 3 splice variant 2 (SLC8A3) RNA, complete cds; alternatively spliced. F510501 F510501.1 GI:24421220  omo sapiens (human) omo sapiens ukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; ammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
REFERENC		

```
Gabellini, N., Bortoluzzi, S., Danieli, G.A. and Carafoli, E.
 AUTHORS
            The human SLC8A3 gene and the tissue-specific Na(+)/Ca(2+)
  TITLE
            exchanger 3 isoforms
  JOURNAL
            Gene 298 (1), 1-7 (2002)
 MEDLINE
            22294016
            12406570
  PUBMED
               (bases 1 to 5250)
REFERENCE
            Gabellini, N., Bortoluzzi, S., Danieli, G.A. and Carafoli, E.
 AUTHORS
 TITLE
            Direct Submission
  JOURNAL
            Submitted (09-MAY-2002) Department of Biology, Unv. of Padova, via
            G. Colombo, Padova, PD 35131, Italy
FEATURES
                     Location/Qualifiers
                     1. .5250
     source
                     /organism="Homo sapiens"
                     /mol type="mRNA"
                     /db xref="taxon:9606"
                     /chromosome="14"
                     /map="14q24.2"
                     1. .5250
     gene
                     /gene="SLC8A3"
     5'UTR
                     1. .754
                     /gene="SLC8A3"
                     755. .3520
    CDS
                     /gene="SLC8A3"
                     /note="NCX3.2; expressed in brain and skeletal muscle;
                     alternatively spliced"
                     /codon start=1
                     /product="Na+/Ca2+ exchanger isoform 3 splice variant 2"
                     /protein id="AAN60790.1"
                     /db xref="GI:24421221"
                     translation="MAWLRLQPLTSAFLHFGLVTFVLFLNGLRAEAGGSGDVPSTGQN/
                     NESCSGSSDCKEGVILPIWYPENPSLGDKIARVIVYFVALIYMFLGVSIIADRFMASI
                     EVITSOEREVTIKKPNGETSTTTIRVWNETVSNLTLMALGSSAPEILLSLIEVCGHGF
                     IAGDLGPSTIVGSAAFNMFIIIGICVYVIPDGETRKIKHLRVFFITAAWSIFAYIWLY
                     MILAVFSPGVVQVWEGLLTLFFFPVCVLLAWVADKRLLFYKYMHKKYRTDKHRGIIIE
                     TEGDHPKGIEMDGKMMNSHFLDGNLVPLEGKEVDESRREMIRILKDLKQKHPEKDLDQ
                     LVEMANYYALSHQQKSRAFYRIQATRMMTGAGNILKKHAAEQAKKASSMSEVHTDEPE
                     DFISKVFFDPCSYQCLENCGAVLLTVVRKGGDMSKTMYVDYKTEDGSANAGADYEFTE
                     GTVVLKPGETQKEFSVGIIDDDIFEEDEHFFVRLSNVRIEEEQPEEGMPPAIFNSLPL
                     PRAVLASPCVATVTILDDDHAGIFTFECDTIHVSESIGVMEVKVLRTSGARGTVIVPF
                     RTVEGTAKGGGEDFEDTYGELEFKNDETVKTIRVKIVDEEEYERQENFFIALGEPKWM
                     ERGISDVTDRKLTMEEEEAKRIAEMGKPVLGEHPKLEVIIEESYEFKTTVDKLIKKTN
                     LALVVGTHSWRDQFMEAITVSAAGDEDEDESGEERLPSCFDYVMHFLTVFWKVLFACV
                     PPTEYCHGWACFAVSILIIGMLTAIIGDLASHFGCTIGLKDSVTAVVFVAFGTSVPDT
                     FASKAAALODVYADASIGNVTGSNAVNVFLGIGLAWSVAAIYWALQGQEFHVSAGTLA
                     FSVTLFTIFAFVCISVLLYRRRPHLGGELGGPRGCKLATTWLFVSLWLLYILFATLEA
                     YCYIKGF"
     3'UTR
                     3521. .5250
                     /gene="SLC8A3"
     polyA signal
                     5221. .5226
                     /gene="SLC8A3"
ORIGIN
  Query Match
                          99.9%; Score 2764.4;
                                                 DB 9; Length 5250;
  Best Local Similarity
                          100.0%; Pred. No. 0;
                                                                  0; Gaps
                                                                              0;
  Matches 2765; Conservative 0; Mismatches
                                                    1; Indels
```

Qу	1	ATGGCGTGGTTAAGGTTGCAGCCTCTCACCTCTGCCTTCCTCCATTTTGGGCTGGTTACC	60
Db	755		814
Qу	61	TTTGTGCTCTTCCTGAATGGTCTTCGAGCAGAGGCTGGTGGCTCAGGGGACGTGCCAAGGGGACGTGCCAAGGGGACGTGCCAAGGGGACGTGCCAAGGGGACGTGCCAAGGGGTGCTCTCCTGAATGGTCTTCGAGCAGAGGCTGGTGGCTCAGGGGACGTGCCAAG	120
Db	815		874
Qу	121	ACAGGGCAGAACAATGAGTCCTGTTCAGGGTCATCGGACTGCAAGGAGGGTGTCATCCTG	180
Db	875		934
Qу	181	CCAATCTGGTACCCGGAGAACCCTTCCCTTGGGGACAAGATTGCCAGGGTCATTGTCTAT	240
Db	935	CCAATCTGGTACCCGGAGAACCCTTCCCTTGGGGACAAGATTGCCAGGGTCATTGTCTAT	994
Qу	241	TTTGTGGCCCTGATATACATGTTCCTTGGGGTGTCCATCATTGCTGACCGCTTCATGGCA	300
Db	995	TTTGTGGCCCTGATATACATGTTCCTTGGGGTGTCCATCATTGCTGACCGCTTCATGGCA	1054
Qу	301	TCTATTGAAGTCATCACCTCTCAAGAGAGGGAGGTGACAATTAAGAAACCCAATGGAGAA	360
Db	1055	TCTATTGAAGTCATCACCTCTCAAGAGAGGGAGGTGACAATTAAGAAACCCAATGGAGAA	1114
Qу	361	ACCAGCACAACCACTATTCGGGTCTGGAATGAAACTGTCTCCAACCTGACCCTTATGGCC	420
Db	1115	ACCAGCACAACCACTATTCGGGTCTGGAATGAAACTGTCTCCAACCTGACCCTTATGGCC	1174
Qу	421	CTGGGTTCCTCTGCTCCTGAGATACTCCTCTCTTTAATTGAGGTGTGTGGTCATGGGTTC	480
Db	1175	CTGGGTTCCTCTGAGATACTCCTCTTTAATTGAGGTGTGTGGTCATGGGTTC	1234
Qу	481	ATTGCTGGTGATCTGGGACCTTCTACCATTGTAGGGAGTGCAGCCTTCAACATGTTCATC	540
Db	1235	ATTGCTGGTGATCTGGGACCTTCTACCATTGTAGGGAGTGCAGCCTTCAACATGTTCATC	1294
Qу	541	ATCATTGGCATCTGTGTCTACGTGATCCCAGACGGAGAGACTCGCAAGATCAAGCATCTA	600
DЪ	1295	ATCATTGGCATCTGTGTCTACGTGATCCCAGACGGAGAGACTCGCAAGATCAAGCATCTA	1354
Qу	601	CGAGTCTTCTTCATCACCGCTGCTTGGAGTATCTTTGCCTACATCTGGCTCTATATGATT	660
Db	1355	CGAGTCTTCTTCATCACCGCTGCTTGGAGTATCTTTGCCTACATCTGGCTCTATATGATT	1414
QУ	661	CTGGCAGTCTTCTCCCCTGGTGTGGTCCAGGTTTGGGAAGGCCTCCTCACTCTCTTCTTC	720
Db	1415	CTGGCAGTCTTCTCCCCTGGTGTGGTCCAGGTTTGGGAAGGCCTCCTCACTCTTCTTC	1474
Qу	721	TTTCCAGTGTGTCCTTCTGGCCTGGGTGGCAGATAAACGACTGCTCTTCTACAAATAC	780
Db	1475	TTTCCAGTGTGTCCTTCTGGCCTGGGTGGCAGATAAACGACTGCTCTTCTACAAATAC	1534
Qу	781	ATGCACAAAAAGTACCGCACAGACAAACACCGAGGAATTATCATAGAGACAGAGGGTGAC	840
Db	1535	ATGCACAAAAAGTACCGCACAGACAAACACCGAGGAATTATCATAGAGACAGAGGGTGAC	1594
Qу	841	${\tt CACCCTAAGGGCATTGAGATGGGAAAATGATGAATTCCCATTTTCTAGATGGGAAC}$	900

Db	1595		1654
Qу	901	CTGGTGCCCCTGGAAGGGAAGGAAGTGGATGAGTCCCGCAGAGAGATGATCCCGGATTCTC	960
Db			
Qу		AAGGATCTGAAGCAAAAACACCCAGAGAAGGACTTAGATCAGCTGGTGGAGATGGCCAAT	
Db			
		TACTATGCTCTTTCCCACCAACAGAAGAGCCGCGCCTTCTACCGTATCCAAGCCACTCGT	
ДУ		TACTATGCTCTTTCCCACCAACAGAAGAGCCGTGCCTTCTACCGTATCCAAGCCACTCGT TACTATGCTCTTTCCCACCAACAGAAGAGCCGTGCCTTCTACCGTATCCAAGCCACTCGT	
Db			
Qу		ATGATGACTGGTGCAGGCAATATCCTGAAGAAACATGCAGCAGAACAAGCCAAGAAGGCC	
Db		ATGATGACTGGTGCAGGCAATATCCTGAAGAAACATGCAGCAGAACAAGCCAAGAAGGCC	
ДУ		TCCAGCATGAGCGAGGTGCACCGATGAGCCTGAGGACTTTATTTCCAAGGTCTTCTTT	
Db		${\tt TCCAGCATGAGCGAGGTGCACCGATGAGCCTGAGGACTTTATTTCCAAGGTCTTCTTT}$	
QУ		GACCCATGTTCTTACCAGTGCCTGGAGAACTGTGGGGCTGTACTCCTGACAGTGGTGAGG	
Db	1955	GACCCATGTTCTTACCAGTGCCTGGAGAACTGTGGGGGCTGTACTCCTGACAGTGGTGAGG	2014
Qу	1261	AAAGGGGGAGACATGTCAAAGACCATGTATGTGGACTACAAAACAGAGGATGGTTCTGCC	1320
Db	2015	AAAGGGGGAGACATGTCAAAGACCATGTATGTGGACTACAAAACAGAGGATGGTTCTGCC	2074
Qy	1321	AATGCAGGGGCTGACTATGAGTTCACAGAGGGCACGGTGGTTCTGAAGCCAGGAGAGACC	1380
Db	2075	AATGCAGGGGCTGACTATGAGTTCACAGAGGGCACGGTGGTTCTGAAGCCAGGAGAGACC	2134
Qу	1381	CAGAAGGAGTTCTCCGTGGGCATAATTGATGACGACATTTTTGAGGAGGATGAACACTTC	1440
Db	2135	CAGAAGGAGTTCTCCGTGGGCATAATTGATGACGACATTTTTGAGGAGGATGAACACTTC	2194
Qу	1441	TTTGTAAGGTTGAGCAATGTCCGCATAGAGGAGGAGCAGCCAGAGGAGGAGGGATGCCTCCA	1500
Db	2195	TTTGTAAGGTTGAGCAATGTCCGCATAGAGGAGGAGCAGCCAGAGGAGGAGGGATGCCTCCA	2254
Qу	1501	GCAATATTCAACAGTCTTCCCTTGCCTCGGGCTGTCCTAGCCTCCCCTTGTGTGGCCACA	1560
Db	2255		2314
Qу	1561	GTTACCATCTTGGATGATGACCATGCAGGCATCTTCACTTTTGAATGTGATACTATTCAT	1620
Db	2315		2374
Qу	1621	GTCAGTGAGAGTATTGGTGTTATGGAGGTCAAGGTTCTGCGGACATCAGGTGCCCGGGGT	1680
Db	2375		2434
Qy	1681	ACAGTCATCGTCCCCTTTAGGACAGTAGAAGGGACAGCCAAGGGTGGCGGTGAGGACTTT	1740

Db	2435	ACAGTCATCGTCCCCTTTAGGACAGTAGAAGGGACAGCCAAGGGTGGCGGTGAGGACTTT	2494
Qу	1741		1800
Db	2495		2554
Qу	1801	AAAATAGTAGATGAGGAGGAATACGAAAGGCAAGAGAATTTCTTCATTGCCCTTGGTGAA	1860
Db	2555	AAAATAGTAGATGAGGAGGAATACGAAAGGCAAGAGAATTTCTTCATTGCCCTTGGTGAA	2614
Qу	1861	CCGAAATGGATGGAACGTGGAATATCAGATGTGACAGACA	1920
Db	2615	CCGAAATGGATGGAACGTGGAATATCAGATGTGACAGACA	2674
Qу	1921	GAGGAGGCCAAGAGGATAGCAGAGATGGGAAAGCCAGTATTGGGTGAACACCCCAAACTA	1980
Db	2675	GAGGAGGCCAAGAGATAGCAGAGATGGGAAAGCCAGTATTGGGTGAACACCCCAAACTA	2734
Qу	1981	GAAGTCATCATTGAAGAGTCCTATGAGTTCAAGACTACGGTGGACAAACTGATCAAGAAG	2040
Db	2735	GAAGTCATCATTGAAGAGTCCTATGAGTTCAAGACTACGGTGGACAAACTGATCAAGAAG	2794
Qу	2041	ACAAACCTGGCCTTGGTTGTGGGGACCCATTCCTGGAGGGACCAGTTCATGGAGGCCATC	2100
Db	2795	ACAAACCTGGCCTTGGTTGTGGGGACCCATTCCTGGAGGGACCAGTTCATGGAGGCCATC	2854
Qу	2101	ACCGTCAGTGCAGCAGGGGATGAGGATGAGTGAATCCGGGGAGGAGAGGCTGCCCTCC	2160
Db	2855	ACCGTCAGTGCAGCAGGGGATGAGGATGAATCCGGGGAGGAGGAGGCTGCCCTCC	2914
Qу	2161	TGCTTTGACTACGTCATGCACTTCCTGACTGTCTTCTGGAAGGTGCTGTTTTGCCTGTGTG	2220
Db	2915	TGCTTTGACTACGTCATGCACTTCCTGACTGTCTTCTGGAAGGTGCTGTTTTGCCTGTGTG	2974
Qу	2221	CCCCCACAGAGTACTGCCACGGCTGGGCCTGCTTCGCCGTCTCCATCCTCATCATTGGC	2280
Db	2975	CCCCCACAGAGTACTGCCACGGCTGGGCCTGCTTCGCCGTCTCCATCCTCATCATTGGC	3034
Qу	2281	ATGCTCACCGCCATCATTGGGGACCTGGCCTCGCACTTCGGCTGCACCATTGGTCTCAAA	2340
Db	3035	ATGCTCACCGCCATCATTGGGGACCTGGCCTCGCACTTCGGCTGCACCATTGGTCTCAAA	3094
Qу	2341	GATTCAGTCACAGCTGTTGTTTTCGTGGCATTTGGCACCTCTGTCCCAGATACGTTTGCC	2400
Db	3095	GATTCAGTCACAGCTGTTGTTTTCGTGGCATTTGGCACCTCTGTCCCAGATACGTTTGCC	3154
Qу	2401	AGCAAAGCTGCTCCCAGGATGTATATGCAGACGCCTCCATTGGCAACGTGACGGGC	2460
Db	3155	AGCAAAGCTGCTCCCAGGATGTATATGCAGACGCCTCCATTGGCAACGTGACGGGC	3214
Qу	2461	AGCAACGCCGTCAATGTCTTCCTGGGCATCGGCCTGGCCTGGTCCGTGGCCGCCATCTAC	2520
Db	3215	AGCAACGCCGTCAATGTCTTCCTGGGCATCGGCCTGGCCTGGTCCGTGGCCGCCATCTAC	3274
QУ	2521	TGGGCTCTGCAGGGACAGGAGTTCCACGTGTCGGCCGGCACACTGGCCTTCTCCGTCACC	2580
Db.	3275	TGGGCTCTGCAGGGACAGGAGTTCCACGTGTCGGCCGGCACACTGGCCTTCTCCGTCACC	3334

```
2581 CTCTTCACCATCTTTGCATTTGTCTGCATCAGCGTGCTCTTGTACCGAAGGCGGCCGCAC 2640
Qу
            Db
       3335 CTCTTCACCATCTTTGCATTTGTCTGCATCAGCGTGCTCTTGTACCGAAGGCGGCCGCAC 3394
       2641 CTGGGAGGGGAGCTTGGTGGCCCCCGTGGCTGCAAGCTCGCCACAACATGGCTCTTTGTG 2700
Qу
           3395 CTGGGAGGGGAGCTTGGTGGCCCCCGTGGCTGCAAGCTCGCCACAACATGGCTCTTTGTG 3454
Db
       2701 AGCCTGTGGCTCCTCTACATACTCTTTGCCACACTAGAGGCCTATTGCTACATCAAGGGG 2760
Qу
           3455 AGCCTGTGGCTCCTCTACATACTCTTTGCCACACTAGAGGCCTATTGCTACATCAAGGGG 3514
Db
       2761 TTCTAA 2766
Qу
            111111
       3515 TTCTAA 3520
Db
RESULT 5
AX476818
          AX476818
                                              linear
                                                      PAT 12-AUG-2002
LOCUS
                              2782 bp
                                       DNA
         Sequence 1 from Patent W00233086.
DEFINITION
ACCESSION
          AX476818
          AX476818.1 GI:22216098
VERSION
KEYWORDS
SOURCE
          Homo sapiens (human)
 ORGANISM
         Homo sapiens
          Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
          Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
REFERENCE
 AUTHORS
          Merkulov, G.V., Ketchum, K.A., Shao, W., Yan, C., di Francesco, V. and
          Beasley, E.M.
 TITLE
          Isolated human transporter proteins, nucleic acid molecules
          encoding human transporter proteins, and uses thereof
 JOURNAL
          Patent: WO 0233086-A 1 25-APR-2002;
          PE Corporation (NY) (US)
                 Location/Qualifiers
FEATURES
                 1. .2782
    source
                 /organism="Homo sapiens"
                 /mol_type="unassigned DNA"
                 /db xref="taxon:9606"
ORIGIN
 Query Match
                      99.8%; Score 2761.2; DB 6; Length 2782;
 Best Local Similarity 99.9%; Pred. No. 0;
 Matches 2763; Conservative
                           0; Mismatches
                                                                 0;
                                           3;
                                              Indels
                                                       0;
                                                          Gaps
          1 ATGGCGTGGTTAAGGTTGCAGCCTCTCACCTCTGCCTTCCTCCATTTTGGGCTGGTTACC 60
Qу
           10 ATGGCGTGGTTAAGGTTGCAGCCTCTCACCTCTGCCTTCCTCCATTTTGGGCTGGTTACC 69
Db
         61 TTTGTGCTCTTCCTGAATGGTCTTCGAGCAGAGGCTGGTGGCTCAGGGGACGTGCCAAGC 120
Qу
            70 TTTGTGCTCTTCCTGAATGGTCTTCGAGCAGAGGCTGGTGGCTCAGGGGACGTGCCAAGC 129
Db
        121 ACAGGGCAGAACAATGAGTCCTGTTCAGGGTCATCGGACTGCAAGGAGGGTGTCATCCTG 180
Qу
```

	Db	130	ACAGGGCAGAACAATGAGTCCTGTTCAGGGTCATCGGACTGCAAGGAGGGTGTCATCCTG	189
	Qу	181	CCAATCTGGTACCCGGAGAACCCTTCCCTTGGGGACAAGATTGCCAGGGTCATTGTCTAT	240
	Db	190		249
	Qу	241	TTTGTGGCCCTGATATACATGTTCCTTGGGGTGTCCATCATTGCTGACCGCTTCATGGCA	300
	Db	250	TTTGTGGCCCTGATATACATGTTCCTTGGGGTGTCCATCATTGCTGACCGCTTCATGGCA	309
	Qу	301	TCTATTGAAGTCATCACCTCTCAAGAGAGGGGGGGGGGG	360
-	Db	310	TCTATTGAAGTCATCACCTCTCAAGAGAGGGAGGTGACAATTAAGAAACCCAATGGAGAA	369
	Qу	361	ACCAGCACAACCACTATTCGGGTCTGGAATGAAACTGTCTCCAACCTGACCCTTATGGCC	420
	Db	370	ACCAGCACAACCACTATTCGGGTCTGGAATGAAACTGTCTCCAACCTGACCCTTATGGCC	429
	Qy	421	CTGGGTTCCTCTGCTCCTGAGATACTCCTCTCTTTAATTGAGGTGTGTGGTCATGGGTTC	480
	Db	430	CTGGGTTCCTCTGAGATACTCCTCTTTAATTGAGGTGTGTGGTCATGGGTTC	489
	Qy	481	ATTGCTGGTGATCTGGGACCTTCTACCATTGTAGGGAGTGCAGCCTTCAACATGTTCATC	540
	Db	490	ATTGCTGGTGATCTGGGACCTTCTACCATTGTAGGGAGTGCAGCCTTCAACATGTTCATC	549
	Qу	541	ATCATTGGCATCTGTGTCTACGTGATCCCAGACGGAGAGACTCGCAAGATCAAGCATCTA	600
	Db	550	ATCATTGGCATCTGTGTCTACGTGATCCCAGACGGAGAGACTCGCAAGATCAAGCATCTA	609
	Qу	601	CGAGTCTTCTTCATCACCGCTGCTTGGAGTATCTTTGCCTACATCTGGCTCTATATGATT	660
	Db	610	CGAGTCTTCTTCATCACCGCTGCTTGGAGTATCTTTGCCTACATCTGGCTCTATATGATT	669
	Qу	661	CTGGCAGTCTTCTCCCCTGGTGTGGTCCAGGTTTGGGAAGGCCTCCTCACTCTTCTTC	720
	Db	670	CTGGCAGTCTTCTCCCCTGGTGTGGTCCAGGTTTGGGAAGGCCTCCTCACTCTTCTTC	729
	Qу	721	TTTCCAGTGTGTCCTTCTGGCCTGGGTGGCAGATAAACGACTGCTCTTCTACAAATAC	780
	Db	730	TTTCCAGTGTGTCCTTCTGGCCTGGGTGGCAGATAAACGACTGCTCTTCTACAAATAC	789
	Qу	781	ATGCACAAAAAGTACCGCACAGACAACACCGAGGAATTATCATAGAGACAGAGGGTGAC	840
	Db	790	ATGCACAAAAAGTACCGCACAGACAAACACCGAGGAATTATCATAGAGACAGAGGGTGAC	849
	Qу	841	CACCCTAAGGGCATTGAGATGGGAAAATGATGAATTCCCATTTTCTAGATGGGAAC	900
	Db	850	CACCCTAAGGGCATTGAGATGGGAAAATGATGAATTCCCATTTTCTAGATGGGAAC	909
	Qу	901	CTGGTGCCCCTGGAAGGGAAGGAAGTGGATGAGTCCCGCAGAGAGATGATCCGGATTCTC	960
	Db	910	CTGGTGCCCCTGGAAGGGAAGGAAGTGGATGATCCCGCAGAGAGATGATCCGCATCCTC	969
	Qу	961	AAGGATCTGAAGCAAAAACACCCAGAGAAGGACTTAGATCAGCTGGTGGAGATGGCCAAT	1020
	Db	970	AAGGATCTGAAGCAAAAACACCCAGAGAAGGACTTAGATCAGCTGGTGGAGATGGCCAAT	1029

ДĀ		TACTATGCTCTTTCCCACCAACAGAAGAGCCGCGCCTTCTACCGTATCCAAGCCACTCGT	
Db		TACTATGCTCTTTCCCACCAACAGAAGAGCCGCGCCTTCTACCGTATCCAAGCCACTCGT	
Qу	1081	ATGATGACTGGTGCAGGCAATATCCTGAAGAACATGCAGCAGAACAAGCCAAGAAGGCC	1140
Db	1090	ATGATGACTGGTGCAGGCAATATCCTGAAGAACATGCAGCAGAACAAGCCAAGAAGGCC	1149
Qy	1141	TCCAGCATGAGCGAGGTGCACACCGATGAGCCTGAGGACTTTATTTCCAAGGTCTTCTTT	1200
Db	1150	${\tt TCCAGCATGAGCGAGGGTGCACCCGATGAGCCTGAGGACTTTATTTCCAAGGTCTTCTTT}$	1209
Qу	1201	GACCCATGTTCTTACCAGTGCCTGGAGAACTGTGGGGGCTGTACTCCTGACAGTGGTGAGG	1260
Db	1210	GACCCATGTTCTTACCAGTGCCTGGAGAACTGTGGGGGCTGTACTCCTGACAGTGGTGAGG	1269
Qy	1261	AAAGGGGGAGACATGTCAAAGACCATGTATGTGGACTACAAAACAGAGGATGGTTCTGCC	1320
Db	1270	AAAGGGGGAGACATGTCAAAGACCATGTATGTGGACTACAAAACAGAGGATGGTTCTGCC	1329
Qу	1321	AATGCAGGGGCTGACTATGAGTTCACAGAGGGCACGGTGGTTCTGAAGCCAGGAGAGACC	1380
Db	1330	AATGCAGGGGCTGACTATGAGTTCACAGAGGGCACGGTGGTTCTGAAGCCAGGAGAGACC	1389
Qу	1381	CAGAAGGAGTTCTCCGTGGGCATAATTGATGACGACATTTTTGAGGAGGATGAACACTTC	1440
Db	1390	CAGAAGGAGTTCTCCGTGGGCATAATTGATGACGACATTTTTGAGGAGGATGAACACTTC	1449
Qу	1441	TTTGTAAGGTTGAGCAATGTCCGCATAGAGGAGGAGGAGCAGCCAGAGGAGGGGATGCCTCCA	1500
Db	1450	TTTGTAAGGTTGAGCAATGTCCGCATAGAGGAGGAGCAGCCAGAGGAGGGGGATGCCTCCA	1509
Qy	1501	GCAATATTCAACAGTCTTCCCTTGCCTCGGGCTGTCCTAGCCTCCCCTTGTGTGGCCACA	1560
Db	1510		1569
Qy	1561	GTTACCATCTTGGATGATGACCATGCAGGCATCTTCACTTTTGAATGTGATACTATTCAT	1620
Db	1570		1629
Qу	1621	$\tt GTCAGTGAGAGTATTGGTGTTATGGAGGTCAAGGTTCTGCGGACATCAGGTGCCCGGGGT$	1680
Db	1630		1689
Qy	1681	ACAGTCATCGTCCCCTTTAGGACAGTAGAAGGGACAGCCAAGGGTGGCGGTGAGGACTTT	1740
Db	1690	ACAGTCATCGTCCCCTTTAGGACAGTAGAAGGGACAGCCAAGGGTGGCGGTGAGGACTTT	1749
Qy	1741	GAAGACACATATGGGGAGTTGGAATTCAAGAATGATGAAAACTGTGAAAACCATAAGGGTT	1800
Db	1750		1809
Qу	1801	AAAATAGTAGATGAGGAGGAATACGAAAGGCAAGAGAATTTCTTCATTGCCCTTGGTGAA	1860
Db	1810	AAAATAGTAGATGAGGAGGAATACGAAAGGCAAGAGAATTTCTTCATTGCCCTTGGTGAA	1869

Qу	1861	CCGAAATGGATGGAACGTGGAATATCAGATGTGACAGACA	1920
Db	1870	$\tt CCGAAATGGATGGAACGTGGAATATCAGATGTGACAGGAAGCTGACTATGGAAGAA$	1929
Qу	1921	GAGGAGGCCAAGAGGATAGCAGAGATGGGAAAGCCAGTATTGGGTGAACACCCCAAACTA	1980
Db	1930	GAGGAGGCCAAGAGGATAGCAGAGATGGGAAAGCCAGTATTGGGTGAACACCCCAAACTG	1989
Qу	1981	GAAGTCATCATTGAAGAGTCCTATGAGTTCAAGACTACGGTGGACAAACTGATCAAGAAG	2040
Db	1990	GAAGTCATCATGAAGACTCCTATGAGTTCAAGACTACGGTGGACAAACTGATCAAGAAG	2049
 Qy		ACAAACCTGGCCTTGGTTGTGGGGACCCATTCCTGGAGGGACCAGTTCATGGAGGCCATC	2100
Db		ACAAACCTGGCCTTGGTGGGGGACCCATTCCTGGAGGGACCAGTTCATGGAGGCCATC	2109
Qу	2101	ACCGTCAGTGCAGCAGGGATGAGGATGAGTGAATCCGGGGAGGAGGAGGCTGCCCTCC	2160
Db	2110	ACCGTCAGTGCAGCAGGGGATGAGGATGAGTCCGGGGAGGAGGAGGCTGCCCTCC	2169
Qу	2161	TGCTTTGACTACGTCATGCACTTCCTGACTGTCTTCTGGAAGGTGCTGTTTGCCTGTGTG	2220
Db	2170	TGCTTTGACTACGTCATGCACTTCCTGACTGTCTTCTGGAAGGTGCTGTTTGCCTGTGTG	2229
Qу	2221	CCCCCACAGAGTACTGCCACGGCTGGGCCTGCTTCGCCGTCTCCATCCTCATCATTGGC	2280
Db	2230	CCCCCACAGAGTACTGCCACGGCTGGGCCTGCTTCGCCGTCTCCATCATCATTGGC	2289
Qy	2281	ATGCTCACCGCCATCATTGGGGACCTGGCCTCGCACTTCGGCTGCACCATTGGTCTCAAA	2340
Db	2290	ATGCTCACCGCCATCATTGGGGACCTGGCCTCGCACTTCGGCTGCACCATTGGTCTCAAA	2349
Qу	2341	GATTCAGTCACAGCTGTTGTTTTCGTGGCATTTGGCACCTCTGTCCCAGATACGTTTGCC	2400
Db	2350	GATTCGGTCACAGCTGTTGTTTTCGTGGCATTTGGCACCTCTGTCCCAGATACGTTTGCC	2409
Qy	2401	AGCAAAGCTGCCCTCCAGGATGTATATGCAGACGCCTCCATTGGCAACGTGACGGGC	2460
Db	2410	AGCAAAGCTGCCCCCCAGGATGTATATGCAGACGCCTCCATTGGCAACGTGACGGGC	2469
Qy	2461	AGCAACGCCGTCAATGTCTTCCTGGGCATCGGCCTGGCCTGGTCCGTGGCCGCCATCTAC	2520
Db	2470	AGCAACGCCGTCAATGTCTTCCTGGGCATCGGCCTGGCCTGGTCCGTGGCCGCCATCTAC	2529
Qy	2521	TGGGCTCTGCAGGGACAGGAGTTCCACGTGTCGGCCGGCACACTGGCCTTCTCCGTCACC	2580
Db	2530	TGGGCTCTGCAGGGACAGGAGTTCCACGTGTCGGCCGGCACACTGGCCTTCTCCGTCACC	2589
QУ	2581	CTCTTCACCATCTTTGCATTTGTCTGCATCAGCGTGCTCTTGTACCGAAGGCGGCCGCAC	2640
Db	2590	CTCTTCACCATCTTTGCATTTGTCTGCATCAGCGTGCTCTTGTACCGAAGGCGGCCGCAC	2649
Qу	2641	CTGGGAGGGAGCTTGGTGGCCCCCGTGGCTGCAAGCTCGCCACAACATGGCTCTTTGTG	2700
Db	2650	CTGGGAGGGGAGCTTGGTGGCCCCCGTGGCTGCAAGCTCGCCACAACATGGCTCTTTGTG	2709
Qу	2701	${\tt AGCCTGTGGCTCCTCTACATACTCTTTGCCACACTAGAGGCCTATTGCTACATCAAGGGG}$	2760

```
2710 AGCCTGTGGCTCCTCTACATACTCTTTGCCACACTAGAGGCCTATTGCTACATCAAGGGG 2769
Db
Qy
         2761 TTCTAA 2766
              2770 TTCTAA 2775
Db
RESULT 6
HSA304853
LOCUS
           HSA304853
                                   2837 bp
                                              mRNA
                                                      linear
                                                              PRI 06-JUN-2001
           Homo sapiens mRNA for sodium/calcium exchanger, SCL8A3, alternative
DEFINITION
            splice form B (SCL8A3 gene).
           AJ304853
ACCESSION
           AJ304853.1 GI:14330384
VERSION
            alternative splicing; form B; SCL8A3 gene; SCL8A3 protein;
KEYWORDS
            Sodium/calcium exchanger.
           Homo sapiens (human)
SOURCE
           Homo sapiens
  ORGANISM
           Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
           Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
REFERENCE
  AUTHORS
            Gabellini, N.
            Characterization of the human SCL8A3 gene for solute carrier family.
  TITLE
            8, member 3 (sodium/calcium exchanger)
  JOURNAL
           Unpublished
           2 (bases 1 to 2837)
REFERENCE
            Bortoluzzi, S.
  AUTHORS
            Direct Submission
  TITLE
            Submitted (22-DEC-2000) Bortoluzzi S., Department of Biology and
  JOURNAL
            Department of Biological Chemistry, University of Padova, via G.
            Colombo 3, 35131 PADOVA, ITALY
FEATURES
                    Location/Qualifiers
                    1. .2837
     source
                    /organism="Homo sapiens"
                    /mol type="mRNA"
                    /db xref="taxon:9606"
                    /chromosome="14"
                    /map="14q24.1"
                    1. .2837
     gene
                    /gene="SCL8A3"
     CDS
                    63. .2837
                    /gene="SCL8A3"
                    /function="sodium/calcium exchanger"
                    /note="alternative splice form B (exons 2, 4, 5, 9, 10,
                    11, 12)"
                    /codon start=1
                    /product="sodium/calcium exchanger SCL8A3"
                    /protein id="CAC40985.1"
                    /db xref="GI:14330385"
                     /db xref="GOA:Q96QG1"
                     /db xref="SPTREMBL:Q96QG1"
                     translation="MAWLRLQPLTSAFLHFGLVTFVLFLNGLRAEAGGSGDVPSTGQN/
                    NESCSGSSDCKEGVILPIWYPENPSLGDKIARVIVYFVALIYMFLGVSIIADRFMASI
                    EVITSQEREVTIKKPNGETSTTTIRVWNETVSNLTLMALGSSAPEILLSLIEVCGHGF
                    IAGDLGPSTIVGSAAFNMFIIIGICVYVIPDGETRKIKHLRVFFITAAWSIFAYIWLY
                    MILAVFSPGVVQVWEGLLTLFFFPVCVLLAWVADKRLLFYKYMHKKYRTDKHRGIIIE
```

TEGDHPKGIEMDGKMMNSHFLDGNLVPLEGKEVDESRREMIRILKDLKQKHPEKDLDQ LVEMANYYALSHQQKSRAFYRIQATRMMTGAGNILKKHAAEQAKKASSMSEVHTDEPE DFISKVFFDPCSYQCLENCGAVLLTVVRKGGDMSKTMYVDYKTEDGSANAGADYEFTE GTVVLKPGETQKEFSVGIIDDDIFEEDEHFFVRLSNVRIEEEQPEEGMPPAIFNSLPL PRAVLASPCVATVTILDDDHAGIFTFECDTIHVSESIGVMEVKVLRTSGARGTVIVPF RTVEGTAKGGGEDFEDTYGELEFKNDETVKTIRVKIVDEEEYERQENFFIALGEPKWM ERGISALLLSPDRKLTMEEEEAKRIAEMGKPVLGEHPKLEVIIEESYEFKTTVDKLIK KTNLALVVGTHSWRDQFMEAITVSAAGDEDEDESGEERLPSCFDYVMHFLTVFWKVLF ACVPPTEYCHGWACFAVSILIIGMLTAIIGDLASHFGCTIGLKDSVTAVVFVAFGTSV PDTFASKAAALQDVYADASIGNVTGSNAVNVFLGIGLAWSVAAIYWALQGQEFHVSAG TLAFSVTLFTIFAFVCISVLLYRRRPHLGGELGGPRGCKLATTWLFVSLWLLYILFAT LEAYCYIKGF"

## ORIGIN

		Similarity		Pred.			,			
	Matches 2760	); Conservat	tive	0; Mi	smatche	s 6;	Indels	9;	Gaps	1;
Qу	1	ATGGCGTGGTT								60
Db	63	ATGGCGTGGTT								122
Qу	61	TTTGTGCTCTT								120
Db	123	TTTGTGCTCTT								182
Qy	121	ACAGGGCAGAA								180
Db	183	ACAGGGCAGAA								242
Qy	181	CCAATCTGGTA								240
Db	243	CCAATCTGGTA								302
Qy	241	TTTGTGGCCCT								300
Db	303	TTTGTGGCCCT								362
Qy	301	TCTATTGAAGT								360
Db	363	TCTATTGAAGT								422
Qy	361	ACCAGCACAAC								420
Db	423	ACCAGCACAAC								482
Qy	421	CTGGGTTCCTC								480
Db	483	CTGGGTTCCTC								542
Q۶	481	ATTGCTGGTGA								540
Dk	543	ATTGCTGGTGA								602
ζζ	541	ATCATTGGCAT								600
Dk	603	ATCATTGGCAT								662

Qу	601	CGAGTCTTCTTCATCACCGCTGCTTGGAGTATCTTTGCCTACATCTGGCTCTATATGATT	660
Db	663		722
Qy	661	CTGGCAGTCTTCTCCCCTGGTGTGGTCCAGGTTTGGGAAGGCCTCCTCACTCTTCTTC	720
Db	723	CTGGCAGTCTTCTCCCCTGGTGTGGTCCAGGTTTGGGAAGGCCTCCTCACTCTTCTTC	782
Qу	721	TTTCCAGTGTGTCCTTCTGGCCTGGGTGGCAGATAAACGACTGCTCTTCTACAAATAC	780
Db	783	TTTCCAGTGTGTCCTTCTGGCCTGGGTGGCAGATAAACGACTGCTCTTCTACAAATAC	842
Qу	781	ATGCACAAAAGTACCGCACAGACAAACACCGAGGAATTATCATAGAGACAGAGGGTGAC	840
Db	843	ATGCACAAAAAGTACCGCACAGACAAACACCGAGGAATTATCATAGAGACAGAGGGTGAC	902
Qу	841	CACCCTAAGGGCATTGAGATGGGAAAATGATGAATTCCCATTTTCTAGATGGGAAC	900
Db	903	CACCCTAAGGGCATTGAGATGGGAAAATGATGAATTCCCATTTTCTAGATGGGAAC	962
Qy	901	CTGGTGCCCCTGGAAGGAAGGAAGTGGATGATCCCGCAGAGAGATGATCCGGATTCTC	960
Db	963	CTGGTGCCCCTGGAAGGAAGGAAGTGGATGAGTCCCGCAGAGAGATGATCCCGGATTCTC	1022
Qy	961	AAGGATCTGAAGCAAAAACACCCAGAGAAGGACTTAGATCAGCTGGTGGAGATGGCCAAT	1020
Db	1023	AAGGATCTGAAGCAAAAACACCCAGAGAAGGACTTAGATCAGCTGGTGGAGATGGCCAAT	1082
Qy	1021	TACTATGCTCTTTCCCACCAACAGAAGAGCCGCGCCTTCTACCGTATCCAAGCCACTCGT	1080
Db	1083	TACTATGCTCTTTCCCACCAACAGAAGAGCCGTGCCTTCTACCGTATCCAAGCCACTCGT	1142
Qу	1081	ATGATGACTGGTGCAGGCAATATCCTGAAGAAACATGCAGCAGAACAAGCCAAGAAGGCC	1140
Db	1143	ATGATGACTGGTGCAGGCAATATCCTGAAGAAACATGCAGCAGAACAAGCCAAGAAGGCC	1202
Qу	1141	TCCAGCATGAGCGAGGTGCACACCGATGAGCCTGAGGACTTTATTTCCAAGGTCTTCTTT	1200
Db	1203	${\tt TCCAGCATGAGCGAGGTGCACACCGATGAGCCTGAGGACTTTATTTCCAAGGTCTTCTTT}$	1262
Qy	1201	GACCCATGTTCTTACCAGTGCCTGGAGAACTGTGGGGGCTGTACTCCTGACAGTGGTGAGG	1260
Db	1263	GACCCATGTTCTTACCAGTGCCTGGAGAACTGTGGGGGCTGTACTCCTGACAGTGGTGAGG	1322
Qy	1261	AAAGGGGGAGACATGTCAAAGACCATGTATGTGGACTACAAAACAGAGGATGGTTCTGCC	1320
Db	1323	AAAGGGGGAGACATGTCAAAGACCATGTATGTGGACTACAAAACAGAGGATGGTTCTGCC	1382
QУ	1321	AATGCAGGGGCTGACTATGAGTTCACAGAGGGCACGGTGGTTCTGAAGCCAGGAGAGACC	1380
Db	1383	AATGCAGGGGCTGACTATGAGTTCACAGAGGGCACGGTGGTTCTGAAGCCAGGAGAGACC	1442
Qу		CAGAAGGAGTTCTCCGTGGGCATAATTGATGACGACATTTTTGAGGAGGATGAACACTTC	
Dh	1///2	C $A$ $A$ $C$ $A$ $A$ $C$	1502

Qу	1441	TTTGTAAGGTTGAGCAATGTCCGCATAGAGGAGGAGCCAGAGGAGGGGGATGCCTCCA	1500
Db	1503		1562
Qу	1501	GCAATATTCAACAGTCTTCCCTTGCCTCGGGCTGTCCTAGCCTCCCCTTGTGTGGCCACA	1560
Db	1563		1622
Qу	1561	GTTACCATCTTGGATGATGACCATGCAGGCATCTTCACTTTTGAATGTGATACTATTCAT	1620
Db	1623		1682
Qу	1621	GTCAGTGAGAGTATTGGTGTTATGGAGGTCAAGGTTCTGCGGACATCAGGTGCCCGGGGT	1680
Db	1683		1742
Qу	1681	ACAGTCATCGTCCCCTTTAGGACAGTAGAAGGGACAGCCAAGGGTGGCGGTGAGGACTTT	1740
Db	1743		1802
Qу	1741	GAAGACACATATGGGGAGTTGGAATTCAAGAATGATGAAAACTGTGAAAACCATAAGGGTT	1800
Db	1803		1862
Qу	1801	AAAATAGTAGATGAGGAGGAATACGAAAGGCAAGAGAATTTCTTCATTGCCCTTGGTGAA	1860
Db	1863		1922
Qу	1861	CCGAAATGGATGGAACGTGGAATATCAGATGTGACAGACAGGAAGCTGACT	1911
Db	1923		1982
Qу	1912	ATGGAAGAAGAGGGCCAAGAGGATAGCAGAGATGGGAAAGCCAGTATTGGGTGAACAC	1971
Db	1983	ATGGAAGAAGAGGACCAAGAGGATAGCAGAGATGGGAAAGCCAGTATTGGGTGAACAC	2042
Qу	1972	CCCAAACTAGAAGTCATCATTGAAGAGTCCTATGAGTTCAAGACTACGGTGGACAAACTG	2031
Db	2043	CCCAAACTAGAAGTCATCATTGAAGAGTCCTATGAGTTCAAGACTACGGTGGACAAACTG	2102
Qу	2032	ATCAAGAAGACAAACCTGGCCTTGGTTGTGGGGACCCATTCCTGGAGGGACCAGTTCATG	2091
Db	2103	ATCAAGAAGACAAACCTGGCCTTGGTTGTGGGGACCCATTCCTGGAGGGACCAGTTCATG	2162
Qу	2092	GAGGCCATCACCGTCAGTGCAGCAGGGGATGAGGATGAGTGAATCCGGGGAGGAGAGG	2151
Db	2163	GAGGCCATCACCGTCAGTGCAGCAGGGGATGAGGATGAGTGAATCCGGGGAGGAGAGG	2222
Qу	2152	CTGCCCTCCTGCTTTGACTACGTCATGCACTTCCTGACTGTCTTCTGGAAGGTGCTGTTT	2211
Db	2223	CTGCCCTCCTGCTTTGACTACGTCATGCACTTCCTGACTGTCTTCTGGAAGGTGCTGTTT	2282
Qу	2212	GCCTGTGTGCCCCCACAGAGTACTGCCACGGCTGGGCCTGCTTCGCCGTCTCCATCCTC	2271
Db	2283	GCCTGTGTGCCCCCCACAGAGTACTGCCACGGCTGGGCCTGCTTCGCCGTCTCCATCCTC	2342
Qy	2272	${\tt ATCATTGGCATGCTCACCGCCATCATTGGGGACCTGGCCTCGCACTTCGGCTGCACCATT}$	2331

Db	2343	
Qу	2332	GGTCTCAAAGATTCAGTCACAGCTGTTGTTTTCGTGGCATTTTGGCACCTCTGTCCCAGAT 2391
Db	2403	
Qу	2392	ACGTTTGCCAGCAAAGCTGCTGCCCTCCAGGATGTATATGCAGACGCCTCCATTGGCAAC 2451
Db	2463	
Qy	2452	GTGACGGCCAGCACGCCGTCAATGTCTTCCTGGGCATCGGCCTGGCCTGGTCCGTGGCC 2511
Db	2523	GTGACGGCCAGCAACGCCGTCAATGTCTTCCTGGGCATCGGCCTGGCCTGGTCCGTGGCC 2582
Qу	2512	GCCATCTACTGGGCTCTGCAGGGACAGGAGTTCCACGTGTCGGCCGGC
Db	2583	GCCATCTACTGGGCTCTGCAGGGACAGGAGTTCCACGTGTCGGCCGGC
Qy	2572	TCCGTCACCCTCTTCACCATCTTTGCATTTGTCTGCATCAGCGTGCTCTTGTACCGAAGG 2631
Db	2643	TCCGTCACCCTCTTCACCATCTTTGCATTTGTCTGCATCAGCGTGCTCTTGTACCGAAGG 2702
Qу	2632	CGGCCGCACCTGGGAGGGGAGCTTGGTGGCCCCCGTGGCTGCAAGCTCGCCACAACATGG 2691
Db	2703	CGGCCGCACCTGGGAGGGGAGCTTGGTGGCCCCCGTGGCTGCAAGCTCGCCACAACATGG 2762
Qу	2692	CTCTTTGTGAGCCTGTGGCTCCTCTACATACTCTTTGCCACACTAGAGGCCTATTGCTAC 2751
Db	2763	CTCTTTGTGAGCCTGTGGCTCCTCTACATACTCTTTGCCACACTAGAGGCCTATTGCTAC 2822
QУ	2752	ATCAAGGGGTTCTAA 2766
Db	2823	ATCAAGGGGTTCTAA 2837
RESULT 7 AF510502 LOCUS DEFINITI	A ON H	F510502 5268 bp mRNA linear PRI 30-OCT-2002 omo sapiens Na+/Ca2+ exchanger isoform 3 splice variant 3 (SLC8A3)
ACCESSIO		RNA, complete cds; alternatively spliced. F510502
VERSION KEYWORDS		F510502.1 GI:24421222
SOURCE ORGANI	SM H	omo sapiens (human) omo sapiens
		ukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; ammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
REFERENC AUTHOR	s c	(bases 1 to 5268) Sabellini, N., Bortoluzzi, S., Danieli, G.A. and Carafoli, E.
TITLE	E	the human SLC8A3 gene and the tissue-specific Na(+)/Ca(2+) . exchanger 3 isoforms
JOURNA MEDLIN	E 2	ene 298 (1), 1-7 (2002) 2294016
PUBME REFERENC	E 2	2406570 (bases 1 to 5268)
AUTHOR	S G	abellini, N., Bortoluzzi, S., Danieli, G.A. and Carafoli, E.

```
TITLE
           Direct Submission
           Submitted (09-MAY-2002) Department of Biology, Unv. of Padova, via
  JOURNAL
           G. Colombo, Padova, PD 35131, Italy
FEATURES
                    Location/Qualifiers
                    1. .5268
     source
                    /organism="Homo sapiens"
                    /mol type="mRNA"
                    /db xref="taxon:9606"
                    /chromosome="14"
                    /map="14g24.2"
    gene
                    1. .5268
                    /gene="SLC8A3"
    5'UTR
                    1. .754
                    /gene="SLC8A3"
    CDS
                    755. .3538
                    /gene="SLC8A3"
                    /note="NCX3.3; expressed in skeletal muscle; alternatively
                    spliced"
                    /codon start=1
                    /product="Na+/Ca2+ exchanger isoform 3 splice variant 3"
                    /protein id="AAN60791.1"
                    /db xref="GI:24421223"
                    /translation="MAWLRLQPLTSAFLHFGLVTFVLFLNGLRAEAGGSGDVPSTGQN
                   NESCSGSSDCKEGVILPIWYPENPSLGDKIARVIVYFVALIYMFLGVSIIADRFMASI
                   EVITSQEREVTIKKPNGETSTTTIRVWNETVSNLTLMALGSSAPEILLSLIEVCGHGF
                    IAGDLGPSTIVGSAAFNMFIIIGICVYVIPDGETRKIKHLRVFFITAAWSIFAYIWLY
                   MILAVFSPGVVQVWEGLLTLFFFPVCVLLAWVADKRLLFYKYMHKKYRTDKHRGIIIE
                   TEGDHPKGI EMDGKMMNSHFLDGNLVPLEGKEVDESRREMIRI LKDLKQKHPEKDLDQ
                   LVEMANYYALSHOOKSRAFYRIOATRMMTGAGNILKKHAAEOAKKASSMSEVHTDEPE
                   DFISKVFFDPCSYQCLENCGAVLLTVVRKGGDMSKTMYVDYKTEDGSANAGADYEFTE
                   GTVVLKPGETQKEFSVGIIDDDIFEEDEHFFVRLSNVRIEEEQPEEGMPPAIFNSLPL
                   PRAVLASPCVATVTILDDDHAGIFTFECDTIHVSESIGVMEVKVLRTSGARGTVIVPF
                   RTVEGTAKGGGEDFEDTYGELEFKNDETVKTIRVKIVDEEEYERQENFFIALGEPKWM
                    ERGISALLLSPDVTDRKLTMEEEEAKRIAEMGKPVLGEHPKLEVIIEESYEFKTTVDK
                   LIKKTNLALVVGTHSWRDQFMEAITVSAAGDEDEDESGEERLPSCFDYVMHFLTVFWK
                   VLFACVPPTEYCHGWACFAVSILIIGMLTAIIGDLASHFGCTIGLKDSVTAVVFVAFG
                   TSVPDTFASKAAALQDVYADASIGNVTGSNAVNVFLGIGLAWSVAAIYWALQGQEFHV
                   SAGTLAFSVTLFTIFAFVCISVLLYRRRPHLGGELGGPRGCKLATTWLFVSLWLLYIL
                   FATLEAYCYIKGF"
    3'UTR
                   3539. .5268
                   /gene="SLC8A3"
                    5239. .5244
    polyA signal
                    /gene="SLC8A3"
ORIGIN
 Query Match
                        98.9%; Score 2736.4; DB 9; Length 5268;
                        99.3%; Pred. No. 0;
 Best Local Similarity
 Matches 2765; Conservative
                               0; Mismatches
                                                             18; Gaps
                                                                         1;
                                                1; Indels
Qу
           1 ATGGCGTGGTTAAGGTTGCAGCCTCTCACCTCTGCCTTCCCCATTTTGGGCTGGTTACC 60
             Db
         755 ATGGCGTGGTTAAGGTTGCAGCCTCTCACCTCTGCCTTCCTCCATTTTGGGCTGGTTACC 814
          61 TTTGTGCTCTTCCTGAATGGTCTTCGAGCAGAGGCTGGTGGCTCAGGGGACGTGCCAAGC 120
Qу
```

815 TTTGTGCTCTTCCTGAATGGTCTTCGAGCAGAGGCTGGTGGCTCAGGGGACGTGCCAAGC 874

Db

Qу	121	ACAGGGCAGAACAATGAGTCCTGTTCAGGGTCATCGGACTGCAAGGAGGGTGTCATCCTG	180
Db	875		934
Qу	181	CCAATCTGGTACCCGGAGAACCCTTCCCTTGGGGACAAGATTGCCAGGGTCATTGTCTAT	240
Db	935	CCAATCTGGTACCCGGAGAACCCTTCCCTTGGGGACAAGATTGCCAGGGTCATTGTCTAT	994
Qу	241	TTTGTGGCCCTGATATACATGTTCCTTGGGGTGTCCATCATTGCTGACCGCTTCATGGCA	300
Db	995	TTTGTGGCCCTGATATACATGTTCCTTGGGGTGTCCATCATTGCTGACCGCTTCATGGCA	1054
Qу	301	TCTATTGAAGTCATCACCTCTCAAGAGAGGGAGGTGACAATTAAGAAACCCAATGGAGAA	360
Db	1055	TCTATTGAAGTCATCACCTCTCAAGAGAGGGAGGTGACAATTAAGAAACCCAATGGAGAA	1114
Qу	361	ACCAGCACAACCACTATTCGGGTCTGGAATGAAACTGTCTCCAACCTGACCCTTATGGCC	420
Db	1115	ACCAGCACAACCACTATTCGGGTCTGGAATGAAACTGTCTCCAACCTGACCCTTATGGCC	1174
Qу	421	CTGGGTTCCTCTGAGATACTCCTCTCTTTAATTGAGGTGTGTGGTCATGGGTTC	480
Db	1175	CTGGGTTCCTCTGAGATACTCCTCTTTAATTGAGGTGTGTGGTCATGGGTTC	1234
Qу	481	ATTGCTGGTGATCTGGGACCTTCTACCATTGTAGGGAGTGCAGCCTTCAACATGTTCATC	540
Db	1235	ATTGCTGGTGATCTGGGACCTTCTACCATTGTAGGGAGTGCAGCCTTCAACATGTTCATC	1294
Qу	541	ATCATTGGCATCTGTGTCTACGTGATCCCAGACGGAGAGCTCGCAAGATCAAGCATCTA	600
Db	1295	ATCATTGGCATCTGTGTCTACGTGATCCCAGACGGAGAGACTCGCAAGATCAAGCATCTA	1354
Qу	601	CGAGTCTTCTTCATCACCGCTGCTTGGAGTATCTTTGCCTACATCTGGCTCTATATGATT	660
Db	1355		1414
Qу	661	CTGGCAGTCTTCTCCCCTGGTGTGGTCCAGGTTTGGGAAGGCCTCCTCACTCTCTTCTTC	720
Db	1415	CTGGCAGTCTTCTCCCCTGGTGTGGTCCAGGTTTGGGAAGGCCTCCTCACTCTTCTTC	1474
Qу	721	TTTCCAGTGTGTCCTTCTGGCCTGGGTGGCAGATAAACGACTGCTCTTCTACAAATAC	780
Db	1475	TTTCCAGTGTGTCCTTCTGGCCTGGGTGGCAGATAAACGACTGCTCTTCTACAAATAC	1534
Qу	781	ATGCACAAAAGTACCGCACAGACAAACACCGAGGAATTATCATAGAGACAGAGGGTGAC	840
Db	1535	ATGCACAAAAGTACCGCACAGACAAACACCGAGGAATTATCATAGAGACAGAGGGTGAC	1594
Qу	841	CACCCTAAGGGCATTGAGATGGGAAAATGATGAATTCCCATTTTCTAGATGGGAAC	900
Db	1595	CACCCTAAGGGCATTGAGATGGGAAAATGATGAATTCCCATTTTCTAGATGGGAAC	1654
Qу	901	CTGGTGCCCCTGGAAGGGAAGGAAGTGGATGAGTCCCGCAGAGAGATGATCCGGATTCTC	960
Db	1655	CTGGTGCCCCTGGAAGGAAGGAAGTGGATGAGTCCCGCAGAGAGATGATCCGGATTCTC	1714
Qy	961	AAGGATCTGAAGCAAAAACACCCAGAGAAGGACTTAGATCAGCTGGTGGAGATGGCCAAT	1020

Db	1715	AAGGATCTGAAGCAAAAACACCCAGAGAAGGACTTAGATCAGCTGGTGGAGATGGCCAAT	1774
Qу	1021	TACTATGCTCTTTCCCACCAACAGAAGAGCCGCGCCTTCTACCGTATCCAAGCCACTCGT	1080
Db	1775	TACTATGCTCTTTCCCACCAACAGAAGAGCCGTGCCTTCTACCGTATCCAAGCCACTCGT	1834
Qу	1081	ATGATGACTGGTGCAGGCAATATCCTGAAGAAACATGCAGCAGAACAAGCCAAGAAGGCC	1140
Db	1835	ATGATGACTGGTGCAGGCAATATCCTGAAGAAACATGCAGCAGAACAAGCCAAGAAGGCC	1894
Qу	1141	TCCAGCATGAGCGAGGTGCACACCGATGAGCCTGAGGACTTTATTTCCAAGGTCTTCTTT	1200
Db	1895		1954
Qу	1201	GACCCATGTTCTTACCAGTGCCTGGAGAACTGTGGGGGCTGTACTCCTGACAGTGGTGAGG	1260
Db	1955	GACCCATGTTCTTACCAGTGCCTGGAGAACTGTGGGGGCTGTACTCCTGACAGTGGTGAGG	2014
Qу	1261	AAAGGGGGAGACATGTCAAAGACCATGTATGTGGACTACAAAACAGAGGATGGTTCTGCC	1320
Db	2015	AAAGGGGGAGACATGTCAAAGACCATGTATGTGGACTACAAAACAGAGGATGGTTCTGCC	2074
Qу	1321	AATGCAGGGGCTGACTATGAGTTCACAGAGGGCACGGTGGTTCTGAAGCCAGGAGAGACC	1380
Db	2075	${\tt AATGCAGGGGCTGACTATGAGTTCACAGAGGGCACGGTGGTTCTGAAGCCAGGAGAGACC}$	2134
Qу	1381	CAGAAGGAGTTCTCCGTGGGCATAATTGATGACGACATTTTTGAGGAGGATGAACACTTC	1440
Db	2135	CAGAAGGAGTTCTCCGTGGGCATAATTGATGACGACATTTTTTGAGGAGGATGAACACTTC	2194
Qу	1441	TTTGTAAGGTTGAGCAATGTCCGCATAGAGGAGGAGCAGCCAGAGGAGGAGGGGATGCCTCCA	1500
Db	2195	TTTGTAAGGTTGAGCAATGTCCGCATAGAGGAGGAGCAGCCAGAGGAGGGGGATGCCTCCA	2254
Qy	1501	GCAATATTCAACAGTCTTCCCTTGCCTCGGGCTGTCCTAGCCTCCCCTTGTGTGGCCACA	1560
Db	2255	GCAATATTCAACAGTCTTCCCTTGCCTCGGGCTGTCCTAGCCTCCCCTTGTGTGGCCACA	2314
Qу		GTTACCATCTTGGATGATGACCATGCAGGCATCTTCACTTTTGAATGTGATACTATTCAT	
Db		GTTACCATCTTGGATGATGACCATGCAGGCATCTTCACTTTTGAATGTGATACTATTCAT	
Qу		GTCAGTGAGAGTATTGGTGTTATGGAGGTCAAGGTTCTGCGGACATCAGGTGCCCGGGGT	
Db		GTCAGTGAGAGTATTGGTGTTATGGAGGTCAAGGTTCTGCGGACATCAGGTGCCCGGGGT	
Qу	1681	ACAGTCATCGTCCCCTTTAGGACAGTAGAAGGGACAGCCAAGGGTGGCGGTGAGGACTTT	1740
Db		ACAGTCATCGTCCCCTTTAGGACAGTAGAAGGGACAGCCAAGGGTGGCGGTGAGGACTTT	
Qу		GAAGACACATATGGGGAGTTGGAATTCAAGAATGATGAAAACTGTGAAAACCATAAGGGTT	
Db		GAAGACACATATGGGGAGTTGGAATTCAAGAATGATGAAAACTGTGAAAACCATAAGGGTT	
Qу	1801	AAAATAGTAGATGAGGAGGAATACGAAAGGCAAGAGAATTTCTTCATTGCCCTTGGTGAA	1860

	Db	2555	AAAATAGTAGATGAGGAGGAATACGAAAGGCAAGAGAATTTCTTCATTGCCCTTGGTGAA	2614
	Qу	1861	CCGAAATGGATGGAACGTGGAATATCAGATGTGACAGACAGG	1902
	Db	2615		2674
	Qу	1903	AAGCTGACTATGGAAGAAGAGGAGGCCAAGAGGATAGCAGAGATGGGAAAGCCAGTATTG	1962
	Db	2675		2734
	Qу	1963	GGTGAACACCCCAAACTAGAAGTCATCATTGAAGAGTCCTATGAGTTCAAGACTACGGTG	2022
	Db	2735		2794
	Qу	2023	GACAAACTGATCAAGAAGACAAACCTGGCCTTGGTTGTGGGGACCCATTCCTGGAGGGAC	2082
	Db	2795		2854
	Qy	2083	CAGTTCATGGAGGCCATCACCGTCAGTGCAGCAGGGGATGAGGATGAGGATGAATCCGGG	2142
	Db	2855		2914
	Qу	2143	GAGGAGAGGCTGCCTCCTGCTTTGACTACGTCATGCACTTCCTGACTGTCTTCTGGAAG	2202
	Db	2915		2974
	Qу	2203	GTGCTGTTTGCCTGTGTGCCCCCACAGAGTACTGCCACGGCTGGGCCTGCTTCGCCGTC	2262
	Db	2975	GTGCTGTTTGCCTGTGTCCCCCCACAGAGTACTGCCACGGCTGGGCCTGCTTCGCCGTC	3034
	Qу	2263	TCCATCCTCATCATTGGCATGCTCACCGCCATCATTGGGGACCTGGCCTCGCACTTCGGC	2322
	Db	3035	TCCATCCTCATCATTGGCATGCTCACCGCCATCATTGGGGACCTGGCCTCGCACTTCGGC	3094
	Qу	2323	TGCACCATTGGTCTCAAAGATTCAGTCACAGCTGTTGTTTTCGTGGCATTTGGCACCTCT	2382
	Db	3095	TGCACCATTGGTCTCAAAGATTCAGTCACAGCTGTTGTTTTCGTGGCATTTGGCACCTCT	3154
	Qу	2383	GTCCCAGATACGTTTGCCAGCAAAGCTGCTGCCCTCCAGGATGTATATGCAGACGCCTCC	2442
	Db	3155	GTCCCAGATACGTTTGCCAGCAAAGCTGCTGCCCTCCAGGATGTATATGCAGACGCCTCC	3214
	Qу	2443	ATTGGCAACGTGACGGCCAGCAACGCCGTCAATGTCTTCCTGGGCATCGGCCTGGCCTGG	2502
	Db	3215	ATTGGCAACGTGACGGCAGCAACGCCGTCAATGTCTTCCTGGGCATCGGCCTGG	3274
•	Qу	2503	TCCGTGGCCGCCATCTACTGGGCTCTGCAGGGACAGGAGTTCCACGTGTCGGCCGGC	2562
	Db	3275	TCCGTGGCCGCCATCTACTGGGCTCTGCAGGGACAGGAGTTCCACGTGTCGGCCGGC	3334
	Qу	2563	CTGGCCTTCTCCGTCACCCTCTTCACCATCTTTGCATTTGTCTGCATCAGCGTGCTCTTG	2622
	Db	3335	CTGGCCTTCTCCGTCACCCTCTTCACCATCTTTGCATTTGTCTGCATCAGCGTGCTCTTG	3394
	Qу	2623	TACCGAAGGCGCCCCCTGGGAGGGGAGCTTGGTGGCCCCCGTGGCTGCAAGCTCGCC	2682
	Db	3395	TACCGAAGGCGGCCCCCTGGGAGGGGAGCTTGGTGGCCCCCGTGGCTGCAAGCTCGCC	3454

```
2683 ACAACATGGCTCTTTGTGAGCCTGTGGCTCCTCTACATACTCTTTGCCACACTAGAGGCC 2742
Qу
             Db
        3455 ACAACATGGCTCTTTGTGAGCCTGTGGCTCCTCTACATACTCTTTGCCACACTAGAGGCC 3514
        2743 TATTGCTACATCAAGGGGTTCTAA 2766
Qy
             3515 TATTGCTACATCAAGGGGTTCTAA 3538
Db
RESULT 8
AX299471
                                                     linear PAT 26-NOV-2001
LOCUS
           AX299471
                                   2781 bp
                                             DNA
DEFINITION Sequence 1 from Patent WO0183744.
           AX299471
ACCESSION
           AX299471.1 GI:17129228
VERSION
KEYWORDS
SOURCE
           Homo sapiens (human)
 ORGANISM
           Homo sapiens
           Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
           Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
REFERENCE
 AUTHORS
           Wilm, C.
           Natrium-calcium exchanger protein
  TITLE
           Patent: WO 0183744-A 1 08-NOV-2001;
  JOURNAL
           MERCK PATENT GmbH (DE)
FEATURES
                    Location/Qualifiers
    source
                    1. .2781
                    /organism="Homo sapiens"
                    /mol type="unassigned DNA"
                    /db xref="taxon:9606"
     CDS
                    1. .>2781
                    /note="unnamed protein product"
                    /codon start=1
                    /protein_id="CAD12716.1"
                    /db xref="GI:17129229"
                    /db xref="REMTREMBL:CAD12716"
                    translation="MAWLRLQPLTSAFLHFGLVTFVLFLNGLRAEAGGSGDVPSTGQN/
                    NESCSGSSDCKEGVILPIWYPENPSLGDKIARVIVYFVALIYMFLGVSIIADRFMASI
                    EVITSQEREVTIKKPNGETSTTTIRVWNETVSNLTLMALGSSAPEILLSLIEVCGHGF
                    IAGDLGPSTIVGSAAFNMFIIIGICVYVIPDGETRKIKHLRVFFITAAWSIFAYIWLY
                    MILAVFSPGVVQVWEGLLTLFFFPVCVLLAWVADKRLLFYKYMHKKYRTDKHRGIIIE
                    TEGDHPKGIEMDGKMMNSHFLDGNLVPLEGKEVDESRREMIRILKDLKQKHPEKDLDQ
                    LVEMANYYALSHOOKSRAFYRIOATRMMTGAGNILKKHAAEQAKKASSMSEVHTDEPE
                    DFISKVFFDPCSYQCLENCGAVLLTVVRKGGDMSKTMYVDYKTEDGSANAGADYEFTE
                    GTVVLKPGETQKEFSVGIIDDDIFEEDEHFFVRLSNVRIEEEQPEEGMPPAIFNSLPL
                    PRAVLASPCVATVTILDDDHAGIFTFECDTIHVSESIGVMEVKVLRTSGARGTVIVPF
                    RTVEGTAKGGGEDFEDTYGELEFKNDETVKTIRVKIVDEEEYERQENFFIALGEPKWM
                    ERGISGVRFFKDVTDRKLTMEEEEAKRIAEMGKPVLGEHPKLEVIIEESYEFKTTVDK
                    LIKKTNLALVVGTHSWRDQFMEAITVSAAGDEDEDESGEERLPSCFDYVMHFLTVFWK
                    VLFACVPPTEYCHGWACFAVSILIIGMLTAIIGDLASHFGCTIGLKDSVTAVVFVAFG
                    TSVPDTFASKAAALQDVYADASIGNVTGSNAVNVFLGIGLAWSVAAIYWALQGQEFHV
                    SAGTLAFSVTLFTIFAFVCISVLLYRRRPHLGGELGGPRGCKLATTWLFVSLWLLYIL
                    FATLEAYCYIKGF"
ORIGIN
```

Best Local Similarity 99.3%; Pred. No. 0; Matches 2762; Conservative 0; Mismatches 1; Indels 18; Gaps 1; 1 ATGGCGTGGTTAAGGTTGCAGCCTCTCACCTCTGCCTTCCTCCATTTTGGGCTGGTTACC 60 Qy 1 ATGGCGTGGTTAAGGTTGCAGCCTCTCACCTCTGCCTTCCTCCATTTTGGGCTGGTTACC 60 Db 61 TTTGTGCTCTTCCTGAATGGTCTTCGAGCAGAGGCTGGTGGCTCAGGGGACGTGCCAAGC 120 Qу Db 61 TTTGTGCTCTTCCTGAATGGTCTTCGAGCAGAGGCTGGTGGCTCAGGGGACGTGCCAAGC 120 121 ACAGGGCAGAACAATGAGTCCTGTTCAGGGTCATCGGACTGCAAGGAGGGTGTCATCCTG 180 Qу 121 ACAGGGCAGAACAATGAGTCCTGTTCAGGGTCATCGGACTGCAAGGAGGGTGTCATCCTG 180 Db 181 CCAATCTGGTACCCGGAGAACCCTTCCCTTGGGGACAAGATTGCCAGGGTCATTGTCTAT 240 Qу 181 CCAATCTGGTACCCGGAGAACCCTTCCCTTGGGGACAAGATTGCCAGGGTCATTGTCTAT 240 Db 241 TTTGTGGCCCTGATATACATGTTCCTTGGGGTGTCCATCATTGCTGACCGCTTCATGGCA 300 Qу 241 TTTGTGGCCCTGATATACATGTTCCTTGGGGTGTCCATCATTGCTGACCGCTTCATGGCA 300 Db 301 TCTATTGAAGTCATCACCTCTCAAGAGAGGGGAGGTGACAATTAAGAAACCCAATGGAGAA 360 Qу 301 TCTATTGAAGTCATCACCTCTCAAGAGAGGGGGGGTGACAATTAAGAAACCCAATGGAGAA 360 Db Qy 361 ACCAGCACAACCACTATTCGGGTCTGGAATGAAACTGTCTCCAACCTGACCCTTATGGCC 420 361 ACCAGCACACCACTATTCGGGTCTGGAATGAAACTGTCTCCAACCTGACCCTTATGGCC 420 Db 421 CTGGGTTCCTCTGCTCCTGAGATACTCCTCTCTTTAATTGAGGTGTGTGGTCATGGGTTC 480 Qy 421 CTGGGTTCCTCTGCTCCTGAGATACTCCTCTCTTTAATTGAGGTGTGTGGTCATGGGTTC 480 Db 481 ATTGCTGGTGATCTGGGACCTTCTACCATTGTAGGGAGTGCAGCCTTCAACATGTTCATC 540 Qу 481 ATTGCTGGTGATCTGGGACCTTCTACCATTGTAGGGAGTGCAGCCTTCAACATGTTCATC 540 Db 541 ATCATTGGCATCTGTGTCTACGTGATCCCAGACGGAGAGACTCGCAAGATCAAGCATCTA 600 Qy

> 661 CTGGCAGTCTTCTCCCCTGGTGTGGTCCAGGTTTGGGAAGGCCTCCTCACTCTCTTCTTC 720

721 TTTCCAGTGTGTCTCTCTGGCCTGGGTGGCAGATAAACGACTGCTCTTCTACAAATAC 780

781 ATGCACAAAAAGTACCGCACAGACAAACACCGAGGAATTATCATAGAGACAGAGGGTGAC 840

Db

Qy

Db

Qу

Db

Qу

Db

Qy

Db	781	ATGCACAAAAAGTACCGCACAGACAAACACCGAGGAATTATCATAGAGACAGAGGGTGAC	840
Qy	841	CACCCTAAGGGCATTGAGATGGGAAAATGATGAATTCCCATTTTCTAGATGGGAAC	900
Db	841		900
Qу	901	CTGGTGCCCCTGGAAGGAAGGAAGTGGATGAGTCCCGCAGAGAGATGATCCGGATTCTC	960
Db	901		960
Qу	961	AAGGATCTGAAGCAAAAACACCCAGAGAAGGACTTAGATCAGCTGGTGGAGATGGCCAAT	1020
Db	961	AAGGATCTGAAGCAAAAACACCCAGAGAAGGACTTAGATCAGCTGGTGGAGATGGCCAAT	1020
Qу	1021	TACTATGCTCTTTCCCACCAACAGAAGAGCCGCGCCTTCTACCGTATCCAAGCCACTCGT	1080
Db	1021	TACTATGCTCTTTCCCACCAACAGAAGAGCCGTGCCTTCTACCGTATCCAAGCCACTCGT	1080
Qу	1081	ATGATGACTGGTGCAGGCAATATCCTGAAGAAACATGCAGCAGAACAAGCCAAGAAGGCC	1140
Db	1081	ATGATGACTGGTGCAGGCAATATCCTGAAGAAACATGCAGCAGAACAAGCCAAGAAGGCC	1140
Qу	1141	TCCAGCATGAGCGAGGTGCACCCGATGAGCCTGAGGACTTTATTTCCAAGGTCTTCTTT	1200
Db	1141	TCCAGCATGAGCGAGGTGCACCGATGAGCCTGAGGACTTTATTTCCAAGGTCTTCTTT	1200
Qу	1201	GACCCATGTTCTTACCAGTGCCTGGAGAACTGTGGGGCTGTACTCCTGACAGTGGTGAGG	1260
Db	1201	GACCCATGTTCTTACCAGTGCCTGGAGAACTGTGGGGCTGTACTCCTGACAGTGGTGAGG	1260
QУ	1261	AAAGGGGGAGACATGTCAAAGACCATGTATGTGGACTACAAAACAGAGGATGGTTCTGCC	1320
Db	1261	AAAGGGGGAGACATGTCAAAGACCATGTATGTGGACTACAAAACAGAGGATGGTTCTGCC	1320
Qу	1321	AATGCAGGGGCTGACTATGAGTTCACAGAGGGCACGGTGGTTCTGAAGCCAGGAGAGACC	1380
Db	1321	AATGCAGGGGCTGACTATGAGTTCACAGAGGGCACGGTGGTTCTGAAGCCAGGAGAGACC	1380
Qу	1381	CAGAAGGAGTTCTCCGTGGGCATAATTGATGACGACATTTTTGAGGAGGATGAACACTTC	1440
Db	1381	CAGAAGGAGTTCTCCGTGGGCATAATTGATGACGACATTTTTGAGGAGGATGAACACTTC	1440
Qу	1441	TTTGTAAGGTTGAGCAATGTCCGCATAGAGGAGGAGCAGCCAGAGGAGGAGGGATGCCTCCA	1500
Db	1441	TTTGTAAGGTTGAGCAATGTCCGCATAGAGGAGGAGGAGCCAGAGGAGGAGGAGGAGCCTCCA	1500
Qу	1501	GCAATATTCAACAGTCTTCCCTTGCCTCGGGCTGTCCTAGCCTCCCCTTGTGTGGCCACA	1560
Db	1501	GCAATATTCAACAGTCTTCCCTTGCCTCGGGCTGTCCTAGCCTCCCCTTGTGTGGCCACA	1560
Qу	1561	GTTACCATCTTGGATGATGACCATGCAGGCATCTTCACTTTTGAATGTGATACTATTCAT	1620
Db	1561	GTTACCATCTTGGATGATGACCATGCAGGCATCTTCACTTTTGAATGTGATACTATTCAT	1620
Qу	1621	GTCAGTGAGAGTATTGGTGTTATGGAGGTCAAGGTTCTGCGGACATCAGGTGCCCGGGGT	1680
Db	1621	GTCAGTGAGAGTATTGGTGTTATGGAGGTCAAGGTTCTGCGGACATCAGGTGCCCGGGGT	1680

QУ	1681	ACAGTCATCGTCCCCTTTAGGACAGTAGAAGGGACAGCCAAGGGTGGCGGTGAGGACTTT	1740
Db	1681	ACAGTCATCGTCCCCTTTAGGACAGTAGAAGGGACAGCCAAGGGTGGCGGTGAGGACTTT	1740
Qy	1741	GAAGACACATATGGGGAGTTGGAATTCAAGAATGATGAAACTGTGAAAACCATAAGGGTT	1800
Db	1741	GAAGACACATATGGGGAGTTGGAATTCAAGAATGATGAAAACTGTGAAAAACCATAAGGGTT	1800
Qу	1801	AAAATAGTAGATGAGGAGGAATACGAAAGGCAAGAGAATTTCTTCATTGCCCTTGGTGAA	1860
Db	1801	AAAATAGTAGATGAGGAGGAATACGAAAGGCAAGAGAATTTCTTCATTGCCCTTGGTGAA	1860
Qу	1861	CCGAAATGGATGGAACGTGGAATATCAGATGTGACAGACAGG	1902
Db	1861		1920
Qу	1903	AAGCTGACTATGGAAGAAGAGGAGGCCAAGAGGATAGCAGAGATGGGAAAGCCAGTATTG	1962
Db	1921		1980
Qу	1963	GGTGAACACCCCAAACTAGAAGTCATCATTGAAGAGTCCTATGAGTTCAAGACTACGGTG	2022
Db	1981		2040
Qу	2023	GACAAACTGATCAAGAAGACAAACCTGGCCTTGGTTGTGGGGACCCATTCCTGGAGGGAC	2082
Db	2041	GACAAACTGATCAAGAAGACAAACCTGGCCTTGGTTGTGGGGACCCATTCCTGGAGGGAC	2100
Qy	2083	CAGTTCATGGAGGCCATCACCGTCAGTGCAGCAGGGGATGAGGATGAGTGAATCCGGG	2142
Db	2101	CAGTTCATGGAGGCCATCACCGTCAGTGCAGCAGGGGATGAGGATGAGGATGAATCCGGG	2160
QУ	2143	GAGGAGAGGCTGCCTCCTGCTTTGACTACGTCATGCACTTCCTGACTGTCTTCTGGAAG	2202
Db	2161	GAGGAGAGGCTGCCTCCTGCTTTGACTACGTCATGCACTTCCTGACTGTCTTCTGGAAG	2220
Qу	2203	GTGCTGTTTGCCTGTGTGCCCCCCACAGAGTACTGCCACGGCTGGGCCTGCTTCGCCGTC	2262
Db	2221	GTGCTGTTTGCCTGTGTGCCCCCCACAGAGTACTGCCACGGCTGGGCCTGCTTCGCCGTC	2280
Qу	2263	TCCATCCTCATCATTGGCATGCTCACCGCCATCATTGGGGACCTGGCCTCGCACTTCGGC	2322
Db	2281	TCCATCCTCATCATTGGCATGCTCACCGCCATCATTGGGGACCTGGCCTCGCACTTCGGC	2340
Qу	2323	TGCACCATTGGTCTCAAAGATTCAGTCACAGCTGTTGTTTTCGTGGCATTTGGCACCTCT	2382
Db	2341	TGCACCATTGGTCTCAAAGATTCAGTCACAGCTGTTGTTTTCGTGGCATTTGGCACCTCT	2400
Qy	2383	GTCCCAGATACGTTTGCCAGCAAAGCTGCTGCCCTCCAGGATGTATATGCAGACGCCTCC	2442
Db	2401		2460
Qу	2443	ATTGGCAACGTGACGGCCAGCAACGCCGTCAATGTCTTCCTGGGCATCGGCCTGG	2502
Db	2461		2520

```
Qу
           Db
       2563 CTGGCCTTCTCCGTCACCCTCTTCACCATCTTTGCATTTGTCTGCATCAGCGTGCTCTTG 2622
Qy
           2581 CTGGCCTTCTCCGTCACCCTCTTCACCATCTTTGCATTTGTCTGCATCAGCGTGCTCTTG 2640
Db
       2623 TACCGAAGGCGGCCCCCTGGGAGGGGAGCTTGGTGGCCCCCGTGGCTGCAAGCTCGCC 2682
Qγ
           Db
       2641 TACCGAAGGCGGCCCCCTGGGAGGGGAGCTTGGTGGCCCCCGTGGCTGCAAGCTCGCC 2700
       2683 ACAACATGGCTCTTTGTGAGCCTGTGGCTCCTCTACATACTCTTTGCCACACTAGAGGCC 2742
Qy
           2701 ACAACATGGCTCTTTGTGAGCCTGTGGCTCCTCTACATACTCTTTGCCACACTAGAGGCC 2760
Db
       2743 TATTGCTACATCAAGGGGTTC 2763
Qу
           1111111111111111111
       2761 TATTGCTACATCAAGGGGTTC 2781
Db
RESULT 9
HSA304852
LOCUS
          HSA304852
                              2840 bp
                                      mRNA
                                             linear
                                                     PRI 06-JUN-2001
         Homo sapiens mRNA for sodium/calcium exchanger SCL8A3, alternative
DEFINITION
          splice form A (SCL8A3 gene).
ACCESSION
          AJ304852
VERSION
          AJ304852.1 GI:14330382
KEYWORDS
          alternative splicing; form A; SCL8A3 gene; SCL8A3 protein;
          Sodium/calcium exchanger.
SOURCE
          Homo sapiens (human)
          Homo sapiens
 ORGANISM
          Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
         Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
REFERENCE
 AUTHORS
 TITLE
          Characterization of the human SCL8A3 gene for solute carrier family
          8, member 3 (sodium/calcium exchanger)
 JOURNAL
          Unpublished
          2 (bases 1 to 2840)
REFERENCE
 AUTHORS
          Bortoluzzi,S.
 TITLE
          Direct Submission
          Submitted (22-DEC-2000) Bortoluzzi S., Department of Biology and
 JOURNAL
          Department of Biological Chemistry, University of Padova, via G.
          Colombo 3, 35131 PADOVA, ITALY
FEATURES
                 Location/Qualifiers
                 1. .2840
    source
                 /organism="Homo sapiens"
                 /mol type="mRNA"
                 /db xref="taxon:9606"
                 /chromosome="14"
                 /map="14q24.1"
                 1. .2840
    gene
                 /gene="SCL8A3"
                 63. .2840
    CDS
                 /gene="SCL8A3"
                 /function="sodium/calcium exchanger"
```

/note="alternative splice form A, (exons 2, 3, 5, 9, 10,
11, 12)"
/codon\_start=1
/product="sodium/calcium exchanger SCL8A3"
/protein\_id="CAC40984.1"
/db\_xref="GI:14330383"
/db\_xref="GOA:Q96QG2"
/db\_xref="SPTREMBL:Q96QG2"

translation="MAWLRLQPLTSAFLHFGLVTFVLFLNGLRAEAGGSGDVPSTGQN/ NESCSGSSDCKEGVILPIWYPENPSLGDKIARVIVYFVALIYMFLGVSIIADRFMASI EVITSOEREVTIKKPNGETSTTTIRVWNETVSNLTLMALGSSAPEILLSLIEVCGHGF IAGDLGPSTIVGSAAFNMFIIIGICVYVIPDGETRKIKHLRVFFITAAWSIFAYIWLY MILAVFSPGVVQVWEGLLTLFFFPVCVLLAWVADKRLLFYKYMHKKYRTDKHRGIIIE TEGDHPKGIEMDGKMMNSHFLDGNLVPLEGKEVDESRREMIRILKDLKQKHPEKDLDQ LVEMANYYALSHQQKSRAFYRIQATRMMTGAGNILKKHAAEQAKKASSMSEVHTDEPE DFISKVFFDPCSYQCLENCGAVLLTVVRKGGDMSKTMYVDYKTEDGSANAGADYEFTE GTVVLKPGETQKEFSVGIIDDDIFEEDEHFFVRLSNVRIEEEQPEEGMPPAIFNSLPL PRAVLASPCVATVTILDDDHAGIFTFECDTIHVSESIGVMEVKVLRTSGARGTVIVPF RTVEGTAKGGGEDFEDTYGELEFKNDETVKTIHIKVIDDEAYEKNKNYFIEMMGPRMV DMSFQKALLLSPDRKLTMEEEEAKRIAEMGKPVLGEHPKLEVIIEESYEFKTTVDKLI KKTNLALVVGTHSWRDQFMEAITVSAAGDEDEDESGEERLPSCFDYVMHFLTVFWKVL FACVPPTEYCHGWACFAVSILIIGMLTAIIGDLASHFGCTIGLKDSVTAVVFVAFGTS VPDTFASKAAALQDVYADASIGNVTGSNAVNVFLGIGLAWSVAAIYWALQGQEFHVSA GTLAFSVTLFTIFAFVCISVLLYRRRPHLGGELGGPRGCKLATTWLFVSLWLLYILFA TLEAYCYIKGF"

## ORIGIN

Query M					e 2657.		9;	Length	2840;		
		Similarity									
Matches	271	2; Conservat	ive	0; M	Mismatch	es 5	4; I	ndels	12;	Gaps	1;
Qу	1	ATGGCGTGGTTA									60
Db	63	ATGGCGTGGTTA									122
Qу	61	TTTGTGCTCTTC									120
Db	123	TTTGTGCTCTTC									182
Qу	121	ACAGGGCAGAAC									180
Db	183	ACAGGGCAGAAC									242
Qу	181	CCAATCTGGTAC									240
Db	243	CCAATCTGGTAC									302
Qy	241	TTTGTGGCCCTG									300
Db	303	TTTGTGGCCCTG	· · · · · · ·								362
Qy	301	TCTATTGAAGTC									360
Db	363	TCTATTGAAGTC									422
Qу	361	ACCAGCACAACC									420

Db	423	ACCAGCACAACCACTATTCGGGTCTGGAATGAAACTGTCTCCAACCTGACCCTTATGGCC	482
Qy	421	CTGGGTTCCTCTGAGATACTCCTCTTTAATTGAGGTGTGTGGTCATGGGTTC	480
Db	483	CTGGGTTCCTCTGAGATACTCCTCTTTTAATTGAGGTGTGTGT	542
Qу	481	ATTGCTGGTGATCTGGGACCTTCTACCATTGTAGGGAGTGCAGCCTTCAACATGTTCATC	540
Db	543	ATTGCTGGTGATCTGGGACCTTCTACCATTGTAGGGAGTGCAGCCTTCAACATGTTCATC	602
Qу	541	ATCATTGGCATCTGTGTCTACGTGATCCCAGACGGAGAGATCGCAAGATCAAGCATCTA	600
Db	603	ATCATTGGCATCTGTGTCTACGTGATCCCAGACGGAGAGACTCGCAAGATCAAGCATCTA	662
Qу	601	CGAGTCTTCTTCATCACCGCTGCTTGGAGTATCTTTGCCTACATCTGGCTCTATATGATT	660
Db	663		722
Qу	661	CTGGCAGTCTTCTCCCCTGGTGTGGTCCAGGTTTGGGAAGGCCTCCTCACTCTTCTTC	720
Db	723	CTGGCAGTCTTCTCCCCTGGTGTGGTCCAGGTTTGGGAAGGCCTCCTCACTCTTCTTC	782
Qу	721	TTTCCAGTGTGTCCTTCTGGCCTGGGTGGCAGATAAACGACTGCTCTTCTACAAATAC	780
Db	783	TTTCCAGTGTGTCCTTCTGGCCTGGGTGGCAGATAAACGACTGCTCTTCTACAAATAC	842
Qу	781	ATGCACAAAAGTACCGCACAGACAAACACCGAGGAATTATCATAGAGACAGAGGGTGAC	840
Db	843	ATGCACAAAAGTACCGCACAGACAAACACCGAGGAATTATCATAGAGACAGAGGGTGAC	902
Qу	841	CACCCTAAGGGCATTGAGATGGGAAAATGATGAATTCCCATTTTCTAGATGGGAAC	900
Db	903	CACCCTAAGGGCATTGAGATGGGAAAATGATGAATTCCCATTTTCTAGATGGGAAC	962
Qу	901	CTGGTGCCCCTGGAAGGAAGGAAGTGGATGATCCCGCAGAGAGATGATCCGGATTCTC	960
Db	963	CTGGTGCCCCTGGAAGGAAGGAAGTGGATGATCCCGCAGAGAGATGATCCCGGATTCTC	1022
Qу	961	AAGGATCTGAAGCAAAAACACCCAGAGAAGGACTTAGATCAGCTGGTGGAGATGGCCAAT	1020
Db	1023	AAGGATCTGAAGCAAAAACACCCAGAGAAGGACTTAGATCAGCTGGTGGAGATGGCCAAT	1082
QУ	1021	TACTATGCTCTTTCCCACCAACAGAAGAGCCGCGCCTTCTACCGTATCCAAGCCACTCGT	1080
Db	1083	TACTATGCTCTTTCCCACCAACAGAAGAGCCGTGCCTTCTACCGTATCCAAGCCACTCGT	1142
Qу	1081	ATGATGACTGGTGCAGGCAATATCCTGAAGAAACATGCAGCAGAACAAGCCAAGAAGGCC	1140
Db	1143	ATGATGACTGGTGCAGGCAATATCCTGAAGAAACATGCAGCAGAACAAGCCAAGAAGGCC	1202
Qy	1141	TCCAGCATGAGCGAGGTGCACACCGATGAGCCTGAGGACTTTATTTCCAAGGTCTTCTTT	1200
Db	1203	TCCAGCATGAGCGAGGTGCACACCGATGAGCCTGAGGACTTTATTTCCAAGGTCTTCTTT	1262
Qу	1201	GACCCATGTTCTTACCAGTGCCTGGAGAACTGTGGGGCTGTACTCCTGACAGTGGTGAGG	1260
Db	1263	GACCCATGTTCTTACCAGTGCCTGGAGAACTGTGGGGGCTGTACTCCTGACAGTGGTGAGG	1322

Qу	1261	AAAGGGGGAGACATGTCAAAGACCATGTATGTGGACTACAAAACAGAGGATGGTTCTGCC	1320
Db	1323	AAAGGGGGAGACATGTCAAAGACCATGTATGTGGACTACAAAACAGAGGATGGTTCTGCC	1382
Qу	1321	AATGCAGGGGCTGACTATGAGTTCACAGAGGGCACGGTGGTTCTGAAGCCAGGAGAGACC	1380
Db	1383		1442
Qу	1381	CAGAAGGAGTTCTCCGTGGGCATAATTGATGACGACATTTTTGAGGAGGATGAACACTTC	1440
Db	1443	CAGAAGGAGTTCTCCGTGGGCATAATTGATGACGACATTTTTGAGGAGGATGAACACTTC	1502
QУ	1441	TTTGTAAGGTTGAGCAATGTCCGCATAGAGGAGGAGCAGCCAGAGGAGGAGGGATGCCTCCA	1500
Db	1503	TTTGTAAGGTTGAGCAATGTCCGCATAGAGGAGGAGCAGCCAGAGGAGGGGATGCCTCCA	1562
Qу	1501	GCAATATTCAACAGTCTTCCCTTGCCTCGGGCTGTCCTAGCCTCCCCTTGTGTGGCCACA	1560
Db	1563	GCAATATTCAACAGTCTTCCCTTGCCTCGGGCTGTCCTAGCCTCCCCTTGTGTGGCCACA	1622
Qу	1561	GTTACCATCTTGGATGATGACCATGCAGGCATCTTCACTTTTGAATGTGATACTATTCAT	1620
Db	1623	GTTACCATCTTGGATGATCACCATGCAGGCATCTTCACTTTTGAATGTGATACTATTCAT	1682
QУ	1621	GTCAGTGAGAGTATTGGTGTTATGGAGGTCAAGGTTCTGCGGACATCAGGTGCCCGGGGT	1680
Db	1683		1742
Qу	1681	ACAGTCATCGTCCCCTTTAGGACAGTAGAAGGGACAGCCAAGGGTGGCGGTGAGGACTTT	1740
Db	1743		1802
Qу	1741	GAAGACACATATGGGGAGTTGGAATTCAAGAATGATGAAAACTGTGAAAACCATAAGGGTT	1800
Db	1803	GAAGACATATGGGGAGTTGGAATTCAAGAATGATGAAAACTGTCAAAACAATTCACATC	1862
Qу	1801	AAAATAGTAGATGAGGAGGAATACGAAAGGCAAGAGAATTTCTTCATTGCCCTTGGTGAA	1860
Db	1863	AAGGTAATTGATGATGAGGCATATGAGAAAAACAAGAATTACTTCATTGAGATGATGGGC	1922
Qу	1861	CCGAAATGGATGGAACGTGGAATATCAGATGTGACAGACAGGAAGCTG	1908
Db	1923	CCCCGCATGGTGGATATGAGTTTTCAGAAAGCGCTCCTGTTATCTCCAGACAGGAAGCTG	1982
Qу	1909	ACTATGGAAGAAGAGGAGGCCAAGAGGATAGCAGAGATGGGAAAGCCAGTATTGGGTGAA	1968
Db	1983	ACTATGGAAGAAGAGGACCAAGAGGATAGCAGAAAGCCAGTATTGGGTGAA	2042
Qу	1969	CACCCCAAACTAGAAGTCATCATTGAAGAGTCCTATGAGTTCAAGACTACGGTGGACAAA	2028
Db	2043	CACCCCAAACTAGAAGTCATTGAAGAGTCCTATGAGTTCAAGACTACGGTGGACAAA	2102
Qу	2029	CTGATCAAGAAGACAAACCTGGCCTTGGTTGTGGGGACCCATTCCTGGAGGGACCAGTTC	2088
Db	2103	CTGATCAAGAAGACAAACCTGGCCTTGGTTGTGGGGACCCATTCCTGGAGGGACCAGTTC	2162

Qy	2089	ATGGAGGCCATCACCGTCAGTGCAGCAGGGGATGAGGATGAGGATGAATCCGGGGAGGAG	2148
Db	2163	ATGGAGGCCATCACCGTCAGTGCAGCAGGGGATGAGGATGAGGATGAATCCGGGGAGGAG	2222
Qy	2149	AGGCTGCCCTCCTGCTTTGACTACGTCATGCACTTCCTGACTGTCTTCTGGAAGGTGCTG	2208
Db	2223	AGGCTGCCCTCCTGCTTTGACTACGTCATGCACTTCCTGACTGTCTTCTGGAAGGTGCTG	2282
Qу	2209	TTTGCCTGTGTGCCCCCCACAGAGTACTGCCACGGCTGGGCCTGCTTCGCCGTCTCCATC	2268
Db	2283	TTTGCCTGTGTGCCCCCCACAGAGTACTGCCACGGCTGGGCCTGCTTCGCCGTCTCCATC	2342
Qy	2269	CTCATCATTGGCATGCTCACCGCCATCATTGGGGACCTGGCCTCGCACTTCGGCTGCACC	2328
Db	2343	CTCATCATTGGCATGCTCACCGCCATCATTGGGGACCTGGCCTCGCACTTCGGCTGCACC	2402
Qy	2329	ATTGGTCTCAAAGATTCAGTCACAGCTGTTGTTTTCGTGGCATTTGGCACCTCTGTCCCA	2388
Db	2403	ATTGGTCTCAAAGATTCAGTCACAGCTGTTGTTTTCGTGGCATTTGGCACCTCTGTCCCA	2462
Qу	2389	GATACGTTTGCCAGCAAAGCTGCTGCCCTCCAGGATGTATATGCAGACGCCTCCATTGGC	2448
Db	2463	GATACGTTTGCCAGCAAAGCTGCTGCCCTCCAGGATGTATATGCAGACGCCTCCATTGGC	2522
Qу	2449	AACGTGACGGCCAGCAACGCCGTCAATGTCTTCCTGGGCATCGGCCTGGCCTGGTCCGTG	2508
Db	2523	AACGTGACGGCCAGCCACCGTCAATGTCTTCCTGGGCATCGGCCTGGCCTGGTCCGTG	2582
Qу	2509	GCCGCCATCTACTGGGCTCTGCAGGGACAGGAGTTCCACGTGTCGGCCGGC	2568
Db	2583	GCCGCCATCTACTGGGCTCTGCAGGGACAGGAGTTCCACGTGTCGGCCGGC	2642
Qу	2569	TTCTCCGTCACCCTCTTCACCATCTTTGCATTTGTCTGCATCAGCGTGCTCTTGTACCGA	2628
Db	2643	TTCTCCGTCACCCTCTTCACCATCTTTGCATTTGTCTGCATCAGCGTGCTCTTGTACCGA	2702
Qy	2629	AGGCGGCCGCACCTGGGAGGGGAGCTTGGTGGCCCCCGTGGCTGCAAGCTCGCCACAACA	2688
Db	2703	AGGCGGCCGCACCTGGGAGGGGAGCTTGGTGGCCCCCGTGGCTGCAAGCTCGCCACAACA	2762
Qу	2689	TGGCTCTTTGTGAGCCTGTGGCTCCTCTACATACTCTTTGCCACACTAGAGGCCTATTGC	2748
Db	2763	TGGCTCTTTGTGAGCCTGTGGCTCCTCTACATACTCTTTGCCACACTAGAGGCCTATTGC	2822
Qy	2749	TACATCAAGGGGTTCTAA 2766	
Db	2823	TACATCAAGGGGTTCTAA 2840	

RESULT 10 AF510503

LOCUS AF510503 5146 bp mRNA linear PRI 30-OCT-2002 DEFINITION Homo sapiens Na+/Ca2+ exchanger isoform 3 splice variant 4 (SLC8A3)

mRNA, complete cds; alternatively spliced.

ACCESSION AF510503

VERSION AF510503.1 GI:24421224

KEYWORDS

```
SOURCE
            Homo sapiens (human)
  ORGANISM
            Homo sapiens
            Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
            Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
REFERENCE
            1
               (bases 1 to 5146)
  AUTHORS
            Gabellini, N., Bortoluzzi, S., Danieli, G.A. and Carafoli, E.
  TITLE
            The human SLC8A3 gene and the tissue-specific Na(+)/Ca(2+)
            exchanger 3 isoforms
            Gene 298 (1), 1-7 (2002)
  JOURNAL
  MEDLINE
            22294016
   PUBMED
            12406570
REFERENCE
               (bases 1 to 5146)
            Gabellini, N., Bortoluzzi, S., Danieli, G.A. and Carafoli, E.
  AUTHORS
            Direct Submission
  TITLE
  JOURNAL
            Submitted (09-MAY-2002) Department of Biology, Unv. of Padova, via
            G. Colombo, Padova, PD 35131, Italy
                     Location/Qualifiers
FEATURES
                     1. .5146
     source
                     /organism="Homo sapiens"
                     /mol type="mRNA"
                     /db xref="taxon:9606"
                     /chromosome="14"
                     /map="14q24.2"
                     1. .5146
     gene
                     /gene="SLC8A3"
     5'UTR
                     1. .754
                     /gene="SLC8A3"
     CDS
                     755. .2617
                     /gene="SLC8A3"
                     /note="NCX3.4; expressed in skeletal muscle; alternatively
                     spliced"
                     /codon start=1
                     /product="Na+/Ca2+ exchanger isoform 3 splice variant 4"
                     /protein id="AAN60792.1"
                     /db xref="GI:24421225"
                     /translation="MAWLRLQPLTSAFLHFGLVTFVLFLNGLRAEAGGSGDVPSTGQN
                     NESCSGSSDCKEGVILPIWYPENPSLGDKIARVIVYFVALIYMFLGVSIIADRFMASI
                     EVITSQEREVTIKKPNGETSTTTIRVWNETVSNLTLMALGSSAPEILLSLIEVCGHGF
                     IAGDLGPSTIVGSAAFNMFIIIGICVYVIPDGETRKIKHLRVFFITAAWSIFAYIWLY
                     MILAVFSPGVVQVWEGLLTLFFFPVCVLLAWVADKRLLFYKYMHKKYRTDKHRGIIIE
                     TEGDHPKGI EMDGKMMNSHFLDGNLVPLEGKEVDESRREMIRI LKDLKQKHPEKDLDQ
                     LVEMANYYALSHQQKSRAFYRIQATRMMTGAGNILKKHAAEQAKKASSMSEVHTDEPE
                     DFISKVFFDPCSYQCLENCGAVLLTVVRKGGDMSKTMYVDYKTEDGSANAGADYEFTE
                     GTVVLKPGETOKEFSVGIIDDDIFEEDEHFFVRLSNVRIEEEOPEEGMPPAIFNSLPL
                     PRAVLASPCVATVTILDDDHAGIFTFECDTIHVSESIGVMEVKVLRTSGARGTVIVPF
                     RTVEGTAKGGGEDFEDTYGELEFKNDETVCDRQEADYGRRGGQEDSRDGKASIG"
     3'UTR
                     2618. .5146
                     /gene="SLC8A3"
                     5117. .5122
     polyA signal
                     /gene="SLC8A3"
ORIGIN
  Query Match
                          92.1%; Score 2546.4; DB 9; Length 5146;
  Best Local Similarity
                          96.2%; Pred. No. 0;
  Matches 2661; Conservative
                                 0; Mismatches
                                                    1; Indels 104; Gaps
                                                                              1;
```

Db	755		814
Qу	61	TTTGTGCTCTTCCTGAATGGTCTTCGAGCAGAGGCTGGTGGCTCAGGGGACGTGCCAAGC	120
Db	815		874
Qу	121	ACAGGCAGAACAATGAGTCCTGTTCAGGGTCATCGGACTGCAAGGAGGGTGTCATCCTG	180
Db	875		934
Qу	181	CCAATCTGGTACCCGGAGAACCCTTCCCTTGGGGACAAGATTGCCAGGGTCATTGTCTAT	240
Db	935		994
Qу	241	TTTGTGGCCCTGATATACATGTTCCTTGGGGTGTCCATCATTGCTGACCGCTTCATGGCA	300
Db	995	TTTGTGGCCCTGATATACATGTTCCTTGGGGTGTCCATCATTGCTGACCGCTTCATGGCA	1054
Qу	301	TCTATTGAAGTCATCACCTCTCAAGAGAGGGGGGGTGACAATTAAGAAACCCAATGGAGAA	360
Db	1055		1114
Qу	361	ACCAGCACAACCACTATTCGGGTCTGGAATGAAACTGTCTCCAACCTGACCCTTATGGCC	420
Db	1115	ACCAGCACAACCACTATTCGGGTCTGGAATGAAACTGTCTCCAACCTGACCCTTATGGCC	1174
Qу	421	CTGGGTTCCTCTGAGATACTCCTCTCTTTAATTGAGGTGTGTGGTCATGGGTTC	480
Db	1175	CTGGGTTCCTCTGAGATACTCCTCTTTAATTGAGGTGTGTGGTCATGGGTTC	1234
Qу	481	ATTGCTGGTGATCTGGGACCTTCTACCATTGTAGGGAGTGCAGCCTTCAACATGTTCATC	540
Db	1235	ATTGCTGGTGATCTGGGACCTTCTACCATTGTAGGGAGTGCAGCCTTCAACATGTTCATC	1294
Qу	541	ATCATTGGCATCTGTGTCTACGTGATCCCAGACGGAGAGACTCGCAAGATCAAGCATCTA	600
Db	1295	ATCATTGGCATCTGTGTCTACGTGATCCCAGACGGAGAGACTCGCAAGATCAAGCATCTA	1354
Qу	601	CGAGTCTTCTTCATCACCGCTGCTTGGAGTATCTTTGCCTACATCTGGCTCTATATGATT	660
Db	1355	CGAGTCTTCTTCATCACCGCTGCTTGGAGTATCTTTGCCTACATCTGGCTCTATATGATT	1414
Qу	661	CTGGCAGTCTTCTCCCCTGGTGTGGTCCAGGTTTGGGAAGGCCTCCTCACTCTCTTCTTC	720
Db	1415	CTGGCAGTCTTCTCCCCTGGTGTGGTCCAGGTTTGGGAAGGCCTCCTCACTCTCTTC	1474
Qу	721	TTTCCAGTGTGTCCTTCTGGCCTGGGTGGCAGATAAACGACTGCTCTTCTACAAATAC	780
Db	1475	TTTCCAGTGTGTCCTTCTGGCCTGGGTGGCAGATAAACGACTGCTCTTCTACAAATAC	1534
Qу	781	ATGCACAAAAGTACCGCACAGACAAACACCGAGGAATTATCATAGAGACAGAGGGTGAC	840
Db	1535	ATGCACAAAAGTACCGCACAGACAAACACCGAGGAATTATCATAGAGACAGAGGGTGAC	1594
Qу	841	CACCCTAAGGGCATTGAGATGGGAAAATGATGAATTCCCATTTTCTAGATGGGAAC	900

Db	1595	CACCCTAAGGGCATTGAGATGGATGGGAAAATGATGAATTCCCATTTTCTAGATGGGAAC	1654
Qу	901	CTGGTGCCCCTGGAAGGAAGGAAGTGGATGAGTCCCGCAGAGAGATGATCCGGATTCTC	960
Db	1655	CTGGTGCCCCTGGAAGGAAGGAAGTGATGATCCCGCAGAGAGATGATCCCGGATTCTC	1714
Qу	961	AAGGATCTGAAGCAAAAACACCCAGAGAAGGACTTAGATCAGCTGGTGGAGATGGCCAAT	1020
Db	1715	AAGGATCTGAAGCAAAAACACCCAGAGAAGGACTTAGATCAGCTGGTGGAGATGGCCAAT	1774
Qу	1021	TACTATGCTCTTTCCCACCAACAGAAGAGCCGCGCCTTCTACCGTATCCAAGCCACTCGT	1080
Db	1775	TACTATGCTCTTTCCCACCAACAGAAGAGCCGTGCCTTCTACCGTATCCAAGCCACTCGT	1834
Qу	1081	ATGATGACTGGTGCAGGCAATATCCTGAAGAAACATGCAGCAGAACAAGCCAAGAAGGCC	1140
Db	1835	ATGATGACTGCTGCAGGCAATATCCTGAAGAACATGCAGCAGAACAAGCCAAGAAGGCC	1894
Qу	1141	TCCAGCATGAGCGAGGTGCACACCGATGAGCCTGAGGACTTTATTTCCAAGGTCTTCTTT	1200
Db	1895	TCCAGCATGAGCGAGGTGCACCCGATGAGCCTGAGGACTTTATTTCCAAGGTCTTCTTT	1954
Qу	1201	GACCCATGTTCTTACCAGTGCCTGGAGAACTGTGGGGCTGTACTCCTGACAGTGGTGAGG	1260
Db	1955	GACCCATGTTCTTACCAGTGCCTGGAGAACTGTGGGGGCTGTACTCCTGACAGTGGTGAGG	2014
Qу	1261	AAAGGGGGAGACATGTCAAAGACCATGTATGTGGACTACAAAACAGAGGATGGTTCTGCC	1320
Db	2015	AAAGGGGGAGACATGTCAAAGACCATGTATGTGGACTACAAAACAGAGGATGGTTCTGCC	2074
Qу	1321	AATGCAGGGGCTGACTATGAGTTCACAGAGGGCACGGTGGTTCTGAAGCCAGGAGAGACC	1380
Db	2075	AATGCAGGGGCTGACTATGAGTTCACAGAGGGCACGGTGGTTCTGAAGCCAGGAGAGACC	2134
QУ	1381	CAGAAGGAGTTCTCCGTGGGCATAATTGATGACGACATTTTTGAGGAGGATGAACACTTC	1440
Db	2135	CAGAAGGAGTTCTCCGTGGGCATAATTGATGACGACATTTTTTGAGGAGGATGAACACTTC	2194
QУ	1441	TTTGTAAGGTTGAGCAATGTCCGCATAGAGGAGGAGCAGCCAGAGGAGGAGGGGATGCCTCCA	1500
Db		TTTGTAAGGTTGAGCAATGTCCGCATAGAGGAGGAGCAGCCAGAGGAGGAGGATGCCTCCA	
QУ	1501	GCAATATTCAACAGTCTTCCCTTGCCTCGGGCTGTCCTAGCCTCCCCTTGTGTGGCCACA	1560
Db	2255	GCAATATTCAACAGTCTTCCCTTGCCTCGGGCTGTCCTAGCCTCCCCTTGTGTGGCCACA	2314
Qу	1561	GTTACCATCTTGGATGATGACCATGCAGGCATCTTCACTTTTGAATGTGATACTATTCAT	1620
Db	2315	GTTACCATCTTGGATGATGACCATGCAGGCATCTTCACTTTTGAATGTGATACTATTCAT	2374
Qу		GTCAGTGAGAGTATTGGTGTTATGGAGGTCAAGGTTCTGCGGACATCAGGTGCCCGGGGT	
Db	2375	GTCAGTGAGAGTATTGGTGTTATGGAGGTCAAGGTTCTGCGGACATCAGGTGCCCGGGGT	2434
Qу		ACAGTCATCGTCCCCTTTAGGACAGTAGAAGGGACAGCCAAGGGTGGCGGTGAGGACTTT	
Db	2435	ACAGTCATCGTCCCCTTTAGGACAGTAGAAGGGACAGCCAAGGGTGGCGGTGAGGACTTT	2494

	Qу	1741	GAAGACACATATGGGGAGTTGGAATTCAAGAATGATGAAACTGTGAAAACCATAAGGGTT	1800
	Db	2495	GAAGACACATATGGGGAGTTGGAATTCAAGAATGATGAAACTGT	2538
	Qу	1801	${\tt AAAATAGTAGATGAGGAGGAATACGAAAGGCAAGAGAATTTCTTCATTGCCCTTGGTGAA}$	1860
	Db	2539		2538
	Qy	1861	CCGAAATGGATGGAACGTGGAATATCAGATGTGACAGACA	1920
	Db	2539		2570
	Qy	1921	GAGGAGGCCAAGAGATAGCAGAGATGGGAAAGCCAGTATTGGGTGAACACCCCAAACTA	1980
	Db	2571		2630
	Qy	1981	GAAGTCATCATTGAAGAGTCCTATGAGTTCAAGACTACGGTGGACAAACTGATCAAGAAG	2040
	Db	2631		2690
	Qy	2041	ACAAACCTGGCCTTGGTTGTGGGGACCCATTCCTGGAGGGACCAGTTCATGGAGGCCATC	2100
	Db	2691		2750
	Qy	2101	ACCGTCAGTGCAGCAGGGATGAGGATGAATCCGGGGAGGAGGAGGCTGCCCTCC	2160
	Db	2751	ACCGTCAGTGCAGCAGGGGATGAGGATGAATCCGGGGAGGAGAGGCTGCCCTCC	2810
	Qy	2161	TGCTTTGACTACGTCATGCACTTCCTGACTGTCTTCTGGAAGGTGCTGTTTGCCTGTGTG	2220
	Db	2811	TGCTTTGACTACGTCATGCACTTCCTGACTGTCTTCTGGAAGGTGCTGTTTGCCTGTGTG	2870
	Qy	2221	CCCCCACAGAGTACTGCCACGGCTGGGCCTGCTTCGCCGTCTCCATCCTCATCATTGGC	2280
	Db	2871	CCCCCACAGAGTACTGCCACGGCTGGGCCTGCTTCGCCGTCTCCATCCTCATCATTGGC	2930
	QУ	2281	ATGCTCACCGCCATCATTGGGGACCTGGCCTCGCACTTCGGCTGCACCATTGGTCTCAAA	2340
	Db	2931	ATGCTCACCGCCATCATTGGGGACCTGGCCTCGCACTTCGGCTGCACCATTGGTCTCAAA	2990
	Qу	2341	GATTCAGTCACAGCTGTTGTTTTCGTGGCATTTGGCACCTCTGTCCCAGATACGTTTGCC	2400
	Db	2991	GATTCAGTCACAGCTGTTGTTTTCGTGGCATTTGGCACCTCTGTCCCAGATACGTTTGCC	3050
	Qy	2401	AGCAAAGCTGCTGCCCTCCAGGATGTATATGCAGACGCCTCCATTGGCAACGTGACGGGC	2460
	Db	3051	AGCAAAGCTGCCCTCCAGGATGTATATGCAGACGCCTCCATTGGCAACGTGACGGGC	3110
•	Qy	2461	AGCAACGCCGTCAATGTCTTCCTGGGCATCGGCCTGGCCTGGTCCGTGGCCGCCATCTAC	2520
	Db	3111		3170
	Qу	2521	TGGGCTCTGCAGGGACAGGAGTTCCACGTGTCGGCCGGCACACTGGCCTTCTCCGTCACC	2580
	Db	3171	TGGGCTCTGCAGGGACAGGAGTTCCACGTGTCGGCCGGCACACTGGCCTTCTCCGTCACC	3230

```
2581 CTCTTCACCATCTTTGCATTTGTCTGCATCAGCGTGCTCTTGTACCGAAGGCGGCCGCAC 2640
Qу
              Db
        3231 CTCTTCACCATCTTTGCATTTGTCTGCATCAGCGTGCTCTTGTACCGAAGGCGGCCGCAC 3290
        2641 CTGGGAGGGGAGCTTGGTGGCCCCCGTGGCTGCAAGCTCGCCACAACATGGCTCTTTGTG 2700
Qу
             3291 CTGGGAGGGGAGCTTGGTGGCCCCCGTGGCTGCAAGCTCGCCACAACATGGCTCTTTGTG 3350
Db
        2701 AGCCTGTGGCTCCTCTACATACTCTTTGCCACACTAGAGGCCTATTGCTACATCAAGGGG 2760
Qy
             3351 AGCCTGTGGCTCCTCTACATACTCTTTGCCACACTAGAGGCCTATTGCTACATCAAGGGG 3410
Db
        2761 TTCTAA 2766
Qу
             111111
        3411 TTCTAA 3416
Db
RESULT 11
BC052435
LOCUS
           BC052435
                                   4640 bp
                                             mRNA
                                                      linear
                                                              ROD 07-OCT-2003
           Mus musculus solute carrier family 8 (sodium/calcium exchanger),
DEFINITION
           member 3, mRNA (cDNA clone MGC:63358 IMAGE:6837128), complete cds.
           BC052435
ACCESSION
           BC052435.1 GI:30851384
VERSION
KEYWORDS
           MGC.
SOURCE
           Mus musculus (house mouse)
 ORGANISM
           Mus musculus
           Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
           Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
REFERENCE
              (bases 1 to 4640)
           Strausberg, R.L., Feingold, E.A., Grouse, L.H., Derge, J.G.,
 AUTHORS
           Klausner, R.D., Collins, F.S., Wagner, L., Shenmen, C.M., Schuler, G.D.,
           Altschul, S.F., Zeeberg, B., Buetow, K.H., Schaefer, C.F., Bhat, N.K.,
           Hopkins, R.F., Jordan, H., Moore, T., Max, S.I., Wang, J., Hsieh, F.,
           Diatchenko, L., Marusina, K., Farmer, A.A., Rubin, G.M., Hong, L.,
           Stapleton, M., Soares, M.B., Bonaldo, M.F., Casavant, T.L.,
           Scheetz, T.E., Brownstein, M.J., Usdin, T.B., Toshiyuki, S.,
           Carninci, P., Prange, C., Raha, S.S., Loquellano, N.A., Peters, G.J.,
           Abramson, R.D., Mullahy, S.J., Bosak, S.A., McEwan, P.J.,
           McKernan, K.J., Malek, J.A., Gunaratne, P.H., Richards, S.,
           Worley, K.C., Hale, S., Garcia, A.M., Gay, L.J., Hulyk, S.W.,
           Villalon, D.K., Muzny, D.M., Sodergren, E.J., Lu, X., Gibbs, R.A.,
           Fahey, J., Helton, E., Ketteman, M., Madan, A., Rodrigues, S.,
           Sanchez, A., Whiting, M., Madan, A., Young, A.C., Shevchenko, Y.,
           Bouffard, G.G., Blakesley, R.W., Touchman, J.W., Green, E.D.,
           Dickson, M.C., Rodriguez, A.C., Grimwood, J., Schmutz, J., Myers, R.M.,
           Butterfield, Y.S., Krzywinski, M.I., Skalska, U., Smailus, D.E.,
           Schnerch, A., Schein, J.E., Jones, S.J. and Marra, M.A.
 TITLE
           Generation and initial analysis of more than 15,000 full-length
           human and mouse cDNA sequences
  JOURNAL
           Proc. Natl. Acad. Sci. U.S.A. 99 (26), 16899-16903 (2002)
           22388257
 MEDLINE
           12477932
  PUBMED
REFERENCE
           2 (bases 1 to 4640)
 AUTHORS
           Strausberg, R.
  TITLE
           Direct Submission
           Submitted (15-MAY-2003) National Institutes of Health, Mammalian
  JOURNAL
```

Gene Collection (MGC), Cancer Genomics Office, National Cancer Institute, 31 Center Drive, Room 11A03, Bethesda, MD 20892-2590, USA

REMARK

NIH-MGC Project URL: http://mgc.nci.nih.gov

COMMENT Contact: MGC help desk

Email: cgapbs-r@mail.nih.gov

Tissue Procurement: Dr. Jim Lin, University of Iowa

cDNA Library Preparation: M. Bento Soares, University of Iowa

cDNA Library Arrayed by: The I.M.A.G.E. Consortium (LLNL)

DNA Sequencing by: University of Iowa, Dr. M. Bento Soares and Dr.

Thomas L. Casavant.

Web site: http://genome.uiowa.edu

Contact: bento-soares@uiowa.edu; tom-casavant@uiowa.edu

Bonaldo, M.F., Akabogu, I., Bair, T., Bair, J., Crouch, K., Davis, A., Fishler, K., Keppel, C., Kucaba, T., Lebeck, M., Melo, A., Schaefer, K.,

Scheetz, T., Smith, C., Snir, E., Tack, D., Trout, K., Walters, J.,

Casavant, T., Soares, M.B.

Clone distribution: MGC clone distribution information can be found through the I.M.A.G.E. Consortium/LLNL at: http://image.llnl.gov Series: Plate: Row: Column: 0.

FEATURES

Location/Qualifiers

source

1. .4640

/organism="Mus musculus"

/mol\_type="mRNA"
/strain="C57BL/6"
/db xref="taxon:10090"

/clone="MGC:63358 IMAGE:6837128"

/tissue type="Brain, enriched mouse brain 12.5dpc"

/clone\_lib="NIH\_BMAP\_FI0"

/lab host="DH10B"

/note="Vector: pYX-ASC"

gene

1. .4640

/gene="Slc8a3"

/note="synonym: Ncx3"
/db\_xref="LocusID:110893"
/db\_xref="MGI:107976"

CDS

373. .3138

/codon start=1

/product="Slc8a3 protein"
/protein\_id="AAH52435.1"
/db\_xref="GI:30851385"
/db\_xref="LocusID:110893"

/translation="MAWLRLQPLTSAFLHFGLVTFVLFLNCLRAEAGDSGDVPSAGQN NESCSGSSDCKEGVILPIWYPENPSLGDKIARVIVYFVALIYMFLGVSIIADRFMASI EVITSQEREVTIKKPNGETSTTTIRVWNETVSNLTLMALGSSAPEILLSLIEVCGHGF IAGDLGPSTIVGSAAFNMFIIIGICVYVIPDGETRKIKHLRVFFVTAAWSIFAYIWLY MILAVFSPGVVQVWEGLLTLFFFPVCVLLAWVADKRLLFYKYMHKKYRTDKHRGIIIE TEGDHPKGIEMDGKMMNSHFLDGNFTPLEGKEVDESRREMIRILKDLKQKHPEKDLDQ LVEMANYYALSHQQKSRAFYRIQATRMMTGAGNILKKHAAEQAKKTSSMSEVHTDEPE DFASKVFFDPCSYQCLENCGAVLLTVVRKGGDISKTMYVDYKTEDGSANAGADYEFTE GTVVLKPGETQKEFSVGIIDDDIFEEDEHFFVRLSNVRVEEEQLAEGMLPAILNSLPL PRAVLASPCVATVTILDDDHAGIFTFECDTIHVSESIGVMEVKVLRTSGARGTVIVPF RTVEGTAKGGGEDFEDAYGELEFKNDETVKTIRVKIVDEEEYERQENFFIALGEPKWM ERGISEVTDRKLTVEEEEAKRIAEMGKPVLGEHPKLEVIIEESYEFKSTVDKLIKKTN LALVVGTHSWRDQFMEAITVSAGGDEDEDESGEERLPSCFDYVMHFLTVFWKVLFACV PPTEYCHGWACFVVSILIIGMLTAIIGDLASHFGCTIGLKDSVTAVVFVAFGTSVPDT

		FASKAAALQDVYADASIGNVTGSNAVNVFLGIGLAWSVAAIYWAMQGQEFHVSAGTLA FSVTLFTIFAFVCLSVLLYRRRPHLGGELGGPRGCKLATTWLFVSLWLLYILFATLEA YCYIKGF"	
	misc feature	7061143	
	misc_reacure	/note="Na_Ca_Ex; Region: Sodium/calcium exchanger protein. This is a family of sodium/calcium exchanger integral membrane proteins. This family covers the integral membrane regions of the proteins. Sodium/calcium exchangers regulate intracellular Ca2+ concentrations in many cells"	•
	misc feature	/db_xref="CDD:pfam01699" 15341827	
	WEDO_ICACATO	/note="Calx-beta; Region: Calx-beta domain"	
		/db_xref="CDD:pfam03160"	
	misc_feature	19272229	
•		/note="Calx-beta; Region: Calx-beta domain"	
	misc feature	/db_xref="CDD:pfam03160" 26413087	
	MISG_Federale	/note="Na_Ca_Ex; Region: Sodium/calcium exchanger protein. This is a family of sodium/calcium exchanger integral membrane proteins. This family covers the integral membrane regions of the proteins. Sodium/calcium exchangers regulate intracellular Ca2+ concentrations in many cells" /db xref="CDD:pfam01699"	•
ORIG	IN	_ •	
Ве		86.7%; Score 2398; DB 10; Length 4640; rity 91.7%; Pred. No. 0;	
Ma	tches 2536; Co	nservative 0; Mismatches 230; Indels 0; Gaps 0;	;
Qу	1 ATGGC	GTGGTTAAGGTTGCAGCCTCTCACCTCTGCCTTCCTCCATTTTGGGCTGGTTACC 60	
Db	373 ATGGC	GTGGTTACGGCTGCAGCCTCTCACCTCTGCCTTCCTCCATTTTGGGCTGGTTACT 432	
Qу	61 TTTGT	GCTCTTCCTGAATGGTCTTCGAGCAGAGGCTGGTGGCTCAGGGGACGTGCCAAGC 120	
~_			
Db	433 TTTGT	GCTCTTCCTGAATTGTCTTCGAGCAGAGGCTGGTGACTCGGGGGATGTGCCCAGT 492	
Qу	121 ACAGG	GCAGAACAATGAGTCCTGTTCAGGGTCATCGGACTGCAAGGAGGGTGTCATCCTG 180	
×Ί			
Db	493 GCAGG	GCAGAACAATGAGTCCTGTTCGGGGTCATCAGACTGCAAGGAGGGTGTCATTTTG 552	
Qу	191 ሮሮልአጥ	CTGGTACCCGGAGAACCCTTCCCTTGGGGACAAGATTGCCAGGGTCATTGTCTAT 240	
ΧJ			
Db		CTGGTATCCAGAGAACCCTTCCCTTGGGGACAAGATTGCCAGGGTCATTGTCTAT 612	
017	2 <i>1</i> 1	GGCCCTGATATACATGTTCCTTGGGGTGTCCATCATTGCTGACCGCTTCATGGCA 300	
QУ			
Dh		CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC	

613 TTTGTGGCCCTGATATACATGTTTCTTGGGGTGTCTATCATTGCTGACCGATTCATGGCA 672

301 TCTATTGAAGTCATCACCTCTCAAGAGAGGGGAGGTGACAATTAAGAAACCCAATGGAGAA 360

673 TCTATTGAAGTCATTACTTCCCAAGAGAGGGAAGTGACCATCAAGAAGCCCAATGGAGAG 732.

361 ACCAGCACAACCACTATTCGGGTCTGGAATGAAACTGTCTCCAACCTGACCCTTATGGCC 420

Db

Qу

Db

Qу

Db	733	ACCAGCACAACTACAATTCGGGTATGGAATGAAACTGTCTCCAATCTGACCCTGATGGCC	792
Qy	421	CTGGGTTCCTCTGAGATACTCCTCTTTAATTGAGGTGTGTGGTCATGGGTTC	480
Db	793	CTGGGCTCTTCTGCTCCAGAGATTCTCCTGTCTTTAATTGAGGTGTGTGGTCACGGGTTC	852
Qу	481	ATTGCTGGTGATCTGGGACCTTCTACCATTGTAGGGAGTGCAGCCTTCAACATGTTCATC	540
Db	853	ATTGCTGGTGATCTGGGACCATCTACCATCGTTGGCAGTGCAGCCTTCAACATGTTCATC	912
Qу	541	ATCATTGGCATCTGTGTCTACGTGATCCCAGACGGAGAGACTCGCAAGATCAAGCATCTA	600
Db	913	ATCATTGGCATCTGTGTCTATGTGATCCCAGATGGGGAGACTCGAAAGATCAAGCACCTG	972
Qу	601	CGAGTCTTCTTCATCACCGCTGCTTGGAGTATCTTTGCCTACATCTGGCTCTATATGATT	660
Db	973	CGAGTCTTCTTCGTCACGGCTGCTTGGAGCATCTTCGCCTACATTTGGCTCTATATGATC	1032
Qу	661	CTGGCAGTCTTCTCCCCTGGTGTGGTCCAGGTTTGGGAAGGCCTCCTCACTCTCTTCTTC	720
Db	1033	CTGGCAGTCTTCTCCTGGTGTGGTCCAGGTTTGGGAAGGCCTCCTTACTCTTCTTC	1092
Qy	721	TTTCCAGTGTGTCCTTCTGGCCTGGGTGGCAGATAAACGACTGCTCTTCTACAAATAC	780
Db	1093	TTTCCCGTGTGTCCTGCTGGCTTGGGTGGCAGATAAGCGACTGCTCTTCTACAAATAC	1152
Qy	781	ATGCACAAAAAGTACCGCACAGACAAACACCGAGGAATTATCATAGAGACAGAGGGTGAC	840
Db	1153	ATGCACAAAAATACCGCACAGATAAACACCGAGGAATTATCATTGAGACAGAGGGTGAC	1212
Qу	841	CACCCTAAGGGCATTGAGATGGGAAAATGATGAATTCCCATTTTCTAGATGGGAAC	900
Db	1213	CACCCTAAGGGCATTGAGATGGGAAAATGATGATTCTCACTTTCTAGATGGGAAC	1272
Qу	901	CTGGTGCCCCTGGAAGGGAAGGAAGTGATGCCGCAGAGAGATGATCCGGATTCTC	960
Db	1273	TTTACACCTTTGGAAGGAAAGGAGGTAGATGATCTCGCAGGGAAATGATCCGGATTCTA	1332
Qу	961	AAGGATCTGAAGCAAAAACACCCAGAGAAGGACTTAGATCAGCTGGTGGAGATGGCCAAT	1020
Db	1333	AAGGATCTGAAACAACACCCAGAAAAGGACCTAGATCAGCTGGTGGAGATGGCCAAT	1392
QУ	1021	TACTATGCTCTTTCCCACCAACAGAAGAGCCGCGCCTTCTACCGTATCCAAGCCACTCGT	1080
Db	1393	TACTATGCTCTTTCCCATCAACAGAAGAGCCGTGCTTTCTACCGCATCCAAGCCACCCGG	1452
QУ	1081	ATGATGACTGGTGCAGGCAATATCCTGAAGAAACATGCAGCAGAACAAGCCAAGAAGGCC	1140
Db	1453	ATGATGACTGGTGCGGGCAATATACTTAAGAAGCATGCAGCCGAGCAAGCCAAGAAGACC	1512
Qу	1141	TCCAGCATGAGCGAGGTGCACACCGATGAGCCTGAGGACTTTATTTCCAAGGTCTTCTTT	1200
Db	1513	TCCAGCATGAGCGAGGTGCATACCGATGAGCCGGAGGACTTTGCCTCTAAGGTCTTCTTT	1572
QУ	1201	GACCCATGTTCTTACCAGTGCCTGGAGAACTGTGGGGGCTGTACTCCTGACAGTGGTGAGG	1260
Db	1573	GACCCATGTTCTTATCAGTGCCTGGAGAACTGTGGAGCTGTCCTCCTGACCGTGGTGAGG	1632

Qy	1261	AAAGGGGAGACATGTCAAAGACCATGTATGTGGACTACAAAACAGAGGATGGTTCTGCC	1320
Db	1633	AAAGGGGGAGATATATCCAAGACCATGTACGTGGACTACAAAACAGAGGACGGCTCCGCC	1692
Qy	1321	AATGCAGGGGCTGACTATGAGTTCACAGAGGGCACGGTGGTTCTGAAGCCAGGAGAGACC	1380
Db	1693	AATGCAGGGGCAGACTATGAGTTCACAGAGGGCACTGTGGTTCTGAAGCCAGGAGAGACC	1752
Qy	1381	CAGAAGGAGTTCTCCGTGGGCATAATTGATGACGACATTTTTGAGGAGGATGAACACTTC	1440
Db	1753	CAGAAGGAGTTCTCTGTGGGCATCATTGATGATGACATTTTTGAGGAGGATGAACACTTC	1812
Qу	1441	TTTGTAAGGTTGAGCAATGTCCGCATAGAGGAGGAGGAGCCAGAGGAGGAGGGGATGCCTCCA	1500
Db	1813	TTTGTGAGGCTGAGCAATGTCCGTGTAGAAGAGGAGCAGCTGGCGGAGGGGATGCTCCCA	1872
Qy	1501	GCAATATTCAACAGTCTTCCCTTGCCTCGGGCTGTCCTAGCCTCCCCTTGTGTGGCCACA	1560
Db	1873	GCAATACTCAATAGTCTTCCTTTGCCTCGGGCTGTCCTGGCCTCCCCTTGTGTGGCCACA	1932
Qy	1561	GTTACCATCTTGGATGATGACCATGCAGGCATCTTCACTTTTGAATGTGATACTATTCAT	1620
Db	1933	GTAACCATCTTGGATGATGACCATGCAGGAATTTTCACTTTTGAATGTGATACCATTCAT	1992
Qy	1621	GTCAGTGAGAGTATTGGTGTTATGGAGGTCAAGGTTCTGCGGACATCAGGTGCCCGGGGT	1680
Db	1993	GTCAGTGAAAGTATTGGTGTTATGGAAGTCAAGGTTTTGAGGACATCAGGTGCCAGGGGC	2052
Qу	1681	ACAGTCATCGTCCCCTTTAGGACAGTAGAAGGGACAGCCAAGGGTGGCGGTGAGGACTTT	1740
Db	2053	ACAGTCATCGTCCCTTTTAGGACAGTAGAAGGGACAGCCAAGGGTGGTGGCGAGGACTTT	2112
Qy	1741	GAAGACACATATGGGGAGTTGGAATTCAAGAATGATGAAAACTGTGAAAACCATAAGGGTT	1800
Db	2113	GAAGATGCATATGGGGAGCTGGAGTTCAAGAATGATGAAAACAGTGAAAACCATAAGGGTT	2172
Qу	1801	AAAATAGTAGATGAGGAGGAATACGAAAGGCAAGAGAATTTCTTCATTGCCCTTGGTGAA	1860
Db	2173	AAAATAGTAGATGAGGAGGAGTACGAGAGGCAAGAGAATTTCTTCATTGCCCTTGGTGAA	2232
Qу	1861	CCGAAATGGATGGAACGTGGAATATCAGATGTGACAGACA	1920
Db	2233	CCGAAATGGATGGAACGTGGAATATCAGAAGTGACAGACA	2292
QУ	1921	GAGGAGGCCAAGAGGATAGCAGAGATGGGAAAGCCAGTATTGGGTGAACACCCCAAACTA	1980
Db	2293	GAGGAAGCCAAGAGAATAGCAGAGATGGGAAAGCCAGTATTGGGTGAACACCCCAAACTA	2352
Qу	1981	GAAGTCATCATTGAAGAGTCCTATGAGTTCAAGACTACGGTGGACAAACTGATCAAGAAG	2040
Db.	2353	GAGGTCATCATTGAAGAGTCCTATGAGTTCAAGAGTACAGTGGATAAGCTGATCAAGAAG	2412
Qy	2041	ACAAACCTGGCCTTGGTTGTGGGGACCCATTCCTGGAGGGACCAGTTCATGGAGGCCATC	2100
Db	2413	ACAAACCTGGCATTGGTGGGGGACCCATTCCTGGAGGGACCAGTTCATGGAAGCCATC	2472

Qу	2101	ACCGTCAGTGCAGCAGGGGATGAGGATGAGTCCGGGGAGGAGGGCTGCCCTCC	2160
Db	2473	ACTGTTAGTGCAGGAGGGGATGAGGATGAAGACGAATCTGGAGAGGAGAGGCTGCCATCC	2532
Qу	2161	TGCTTTGACTACGTCATGCACTTCCTGACTGTCTTCTGGAAGGTGCTGTTTTGCCTGTGTG	2220
Db	2533	TGCTTTGACTACGTCATGCACTTCCTGACGGTCTTCTGGAAGGTGCTCTTTGCCTGTGTG	2592
Qy	2221	CCCCCACAGAGTACTGCCACGGCTGGGCCTGCTTCGCCGTCTCCATCCTCATCATTGGC	2280
Db	2593	CCCCCACAGAGTACTGCCACGGCTGGGCCTGCTTCGTGGTCTCCATCCTCATTATTGGC	2652
QУ	2281	ATGCTCACCGCCATCATTGGGGACCTGGCCTCGCACTTCGGCTGCACCATTGGTCTCAAA	2340
Db	2653	ATGCTCACCGCCATCATCGGGGACCTGGCCTCTCACTTCGGCTGCACCATCGGGCTCAAG	2712
QУ	2341	GATTCAGTCACAGCTGTTGTTTTCGTGGCATTTGGCACCTCTGTCCCAGATACGTTTGCC	2400
Db	2713	GATTCGGTCACAGCTGTTGTTTTTTGTGGCATTCGGCACCTCTGTGCCAGATACATTTGCC	2772
QУ	2401	AGCAAAGCTGCTCCCAGGATGTATATGCAGACGCCTCCATTGGCAACGTGACGGGC	2460
Db	2773	AGCAAAGCCGCTGCCCTGCAGGACGTGTATGCAGATGCTTCCATTGGCAACGTCACAGGC	2832
QУ	2461	AGCAACGCCGTCAATGTCTTCCTGGGCATCGGCCTGGCCTGGTCCGTGGCCGCCATCTAC	2520
Db	2833	AGTAATGCCGTCAATGTCTTCCTGGGTATTGGTTTGGCCTGGTCCGTGGCCGCCATCTAC	2892
QУ	2521	TGGGCTCTGCAGGGACAGGAGTTCCACGTGTCGGCCGGCACACTGGCCTTCTCCGTCACC	2580
Db	2893	TGGGCCATGCAGGACAGGAGTTCCATGTGTCCGCTGGCACTCTGGCCTTCTCGGTCACT	2952
Qy	2581	CTCTTCACCATCTTTGCATTTGTCTGCATCAGCGTGCTCTTGTACCGAAGGCGGCCGCAC	2640
Db	2953	CTTTTCACCATCTTTGCATTTGTCTGCCTCAGTGTGCTCTTGTATCGTCGGCCGCCCCAT	3012
Qy	2641	CTGGGAGGGAGCTTGGTGGCCCCCGTGGCTGCAAGCTCGCCACAACATGGCTCTTTGTG	2700
Db	3013	CTGGGCGGGGAGCTCGGAGGTCCTCGTGGCTGCAAGCTTGCCACGACATGGCTCTTTGTG	3072
Qy	2701	AGCCTGTGGCTCCTCTACATACTCTTTGCCACACTAGAGGCCTATTGCTACATCAAGGGG	2760
Db	3073	AGCCTATGGCTCCTCTACATACTATTTGCCACGCTGGAGGCCTACTGCTACATCAAGGGG	3132
QУ	2761	TTCTAA 2766	
Db	3133	TTCTGA 3138	

## RESULT 12

RNU53420

LOCUS RNU53420 4854 bp mRNA linear ROD 04-OCT-1996

DEFINITION Rattus norvegicus sodium-calcium exchanger form 3 (NCX3) mRNA,

complete cds.

ACCESSION U53420

VERSION U53420.1 GI:1552525

KEYWORDS

SOURCE Rattus norvegicus (Norway rat) ORGANISM Rattus norvegicus Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Rattus. REFERENCE (bases 1 to 4854) AUTHORS Nicoll, D.A., Quednau, B.D., Qui, Z., Xia, Y.R., Lusis, A.J. and Philipson, K.D. TITLE Cloning of a third mammalian Na+-Ca2+ exchanger, NCX3 J. Biol. Chem. 271 (40), 24914-24921 (1996) JOURNAL MEDLINE 96394663 8798769 PUBMED REFERENCE 2 (bases 1 to 4854) AUTHORS Nicoll, D.A. and Philipson, K.D. TITLE Direct Submission Submitted (02-APR-1996) Physiology, University of California, Los JOURNAL Angeles, 3645 MRLB, 675 Circle Dr. S., Los Angeles, CA 90095-1760, USA **FEATURES** Location/Qualifiers 1. .4854 source /organism="Rattus norvegicus" /mol type="mRNA" /strain="Sprague-Dawley" /db xref="taxon:10116" /map="tightly linked to D12Ucla3" /note="maps to chromosome 12 in mouse and 14q21-31 in human" gene 1. .4854 /gene="NCX3" CDS 834. .3617 /gene="NCX3" /note="similar to human ncx2 product encoded by GenBank Accession Number X93017" /codon start=1 /product="sodium-calcium exchanger form 3" /protein id="AAC52817.1" /db xref="GI:1552526" /translation="MAWLRLQPLTSAFLHFGLVTFVLFLNGLRAEAGDLRDVPSAGQN NESCSGSSDCKEGVILPIWYPENPSLGDKIARVIVYFVALIYMFLGVSIIADRFMASI EVITSQEREVTIKKPNGETSTTTIRVWNETVSNLTLMALGSSAPEILLSLIEVCGHGF IAGDLGPSTIVGSAAFNMFIIIGICVYVIPDGETRKIKHLRVFFVTAAWSVFAYIWLY MILAVFSPGVVQVWEGLLTLFFFPVCVLLAWVADKRLLFYKYMHKRYRTDKHRGIIIE TEGEHPKGIEMDGKMMNSHFLDGNLIPLEGKEVDESRREMIRILKDLKQKHPEKDLDQ LVEMANYYALSHOOKSRAFYRIOATRMMTGAGNILKKHAAEQAKKTASMSEVHTDEPE DFASKVFFDPCSYQCLENCGAVLLTVVRKGGDISKTMYVDYKTEDGSANAGADYEFTE GTVVLKPGETQKEFSVGIIDDDIFEEDEHFFVRLSNVRVEEEQLEEGMTPAILNSLPL PRAVLASPCVATVTILDDDHAGIFTFECDTIHVSESIGVMEVKVLRTSGARGTVIVPF RTVEGTAKGGGEDFEDTYGELEFKNDETVKTIRVKIVDEEEYERQENFFIALGEPKWM ERGISALLLSPEVTDRKLTMEEEEAKRIAEMGKPVLGEHPKLEVIIEESYEFKSTVDK LIKKTNLALVVGTHSWRDOFMEAITVSAAGDEEEDESGEERLPSCFDYVMHFLTVFWK VLFACVPPTEYCHGWACFVVSILIIGMLTAIIGDLASHFGCTIGLKDSVTAVVFVAFG TSVPDTFASKAAALQDVYADASIGNVTGSNAVNVFLGIGLAWSVAAIYWAMQGQEFHV SAGTLAFSVTLFTIFAFVCLSVLLYRRRPHLGGELGGPRGCKLATTWLFVSLWLLYVL FATLEAYCYIKGF"

Best Local Similarity 90.7%; Pred. No. 0; Matches 2525; Conservative 0; Mismatches 241; Indels 18: Gaps 1; 1 ATGGCGTGGTTAAGGTTGCAGCCTCTCACCTCTGCCTTCCTCCATTTTGGGCTGGTTACC 60 Qу 834 ATGGCGTGGTTACGGCTGCAGCCTCTCACCTCTGCCTTCCTCCATTTCGGGCTGGTTACT 893 Db 61 TTTGTGCTCTTCCTGAATGGTCTTCGAGCAGAGGCTGGTGGCTCAGGGGACGTGCCAAGC 120 Qу 1111 11111 11 Db 894 TTTGTGCTCTTCCTGAATGGTCTTCGAGCAGAGGCTGGTGACTTGAGGGATGTGCCCAGT 953 121 ACAGGGCAGAACAATGAGTCCTGTTCAGGGTCATCGGACTGCAAGGAGGGTGTCATCCTG 180 Qу 954 GCAGGACAGAACAATGAGTCCTGTTCAGGGTCATCAGACTGCAAGGAGGGTGTCATCTTG 1013 Db 181 CCAATCTGGTACCCGGAGAACCCTTCCCTTGGGGACAAGATTGCCAGGGTCATTGTCTAT 240 Qу 1014 CCAATCTGGTATCCAGAGAACCCTTCCCTTGGGGACAAGATTGCAAGGGTCATTGTCTAT 1073 Db 241 TTTGTGGCCCTGATATACATGTTCCTTGGGGTGTCCATCATTGCTGACCGCTTCATGGCA 300 Qy 1074 TTTGTGGCCCTGATATACATGTTTCTTGGAGTGTCTATCATTGCTGACCGATTCATGGCA 1133 Db 301 TCTATTGAAGTCATCACCTCTCAAGAGAGGGAGGTGACAATTAAGAAACCCAATGGAGAA 360 Qу 1134 TCTATTGAAGTTATTACCTCCCAAGAGAGGGGAGGTGACAATCAAGAAGCCCAATGGAGAG 1193 Db Qу 361 ACCAGCACAACCACTATTCGGGTCTGGAATGAAACTGTCTCCAACCTGACCCTTATGGCC 420 1194 ACCAGCACAACTACAATTCGGGTATGGAATGAAACTGTCTCCAACCTGACCCTGATGGCC 1253 Db 421 CTGGGTTCCTCTGCTCCTGAGATACTCCTCTCTTTAATTGAGGTGTGTGGTCATGGGTTC 480 Qу 1254 CTAGGCTCTTCTGCTCCGGAGATTCTCCTGTCTTTAATTGAGGTGTGTGGTCACGGGTTC 1313 Db 481 ATTGCTGGTGATCTGGGACCTTCTACCATTGTAGGGAGTGCAGCCTTCAACATGTTCATC 540 Qу 1314 ATTGCTGGTGATTTGGGACCGTCTACCATTGTCGGCAGTGCAGCCTTCAACATGTTCATC 1373 Db 541 ATCATTGGCATCTGTGTCTACGTGATCCCAGACGGAGAGACTCGCAAGATCAAGCATCTA 600 Qу 1374 ATCATTGGCATCTGTGTCTATGTGATCCCAGATGGGGAGACTCGCAAGATCAAGCACCTT 1433 Db 601 CGAGTCTTCTTCATCACCGCTGCTTGGAGTATCTTTGCCTACATCTGGCTCTATATGATT 660 Qу 1434 CGAGTCTTCTTTGTCACGGCTGCTTGGAGCGTCTTTGCCTATATTTGGCTCTACATGATC 1493 Db 661 CTGGCAGTCTTCTCCCCTGGTGTGGTCCAGGTTTGGGAAGGCCTCCTCACTCTCTTCTTC 720 Qу 1494 CTGGCAGTCTTCTCTCTGGTGTGGTCCAGGTTTGGGAAGGCCTCCTTACTCTCTTCTTC 1553 Db 721 TTTCCAGTGTGTCCTTCTGGCCTGGGTGGCAGATAAACGACTGCTCTTCTACAAATAC 780 Qy 1554 TTTCCAGTGTGTCCTGCTGGCTTGGGTGGCAGATAAGCGACTGCTCTTCTACAAATAC 1613 Db 781 ATGCACAAAAAGTACCGCACAGACAAACACCGAGGAATTATCATAGAGACAGAGGGTGAC 840 Qy

Db	1614	ATGCACAAAAGATACCGCACAGATAAACACCGAGGAATTATCATTGAGACAGAGGGTGAA	1673
Qу	841	CACCCTAAGGGCATTGAGATGGGAAAATGATGAATTCCCATTTTCTAGATGGGAAC	900
Db	1674		1733
Qy	901	CTGGTGCCCCTGGAAGGAAGGAAGTGGATGAGTCCCGCAGAGAGATGATCCGGATTCTC	960
Db	1734	CTTATACCCTTGGAAGGAAAGGAGGTAGATGAATCTCGCAGGGAAATGATCCGAATTCTT	1793
Qу	961	AAGGATCTGAAGCAAAAACACCCAGAGAAGGACTTAGATCAGCTGGTGGAGATGGCCAAT	1020
Db	1794	AAGGATCTGAAGCAAAAACACCCAGAAAAAGACTTAGATCAGCTGGTGGAGATGGCCAAT	1853
Qу	1021	TACTATGCTCTTTCCCACCAACAGAAGAGCCGCGCCTTCTACCGTATCCAAGCCACTCGT	1080
Db	1854	TACTATGCTCTTTCCCACCAACAGAAGAGCCGTGCTTTCTACCGCATCCAAGCCACCCGG	1913
Qу	1081	ATGATGACTGGTGCAGGCAATATCCTGAAGAAACATGCAGCAGAACAAGCCAAGAAGGCC	1140
Db	1914	ATGATGACTGGTGCAGGCAATATACTTAAGAAACATGCAGCAGAGCAAGCCAAGAAGACC	1973
Qу	1141	TCCAGCATGAGCGAGGTGCACACCGATGAGCCTGAGGACTTTATTTCCAAGGTCTTCTTT	1200
Db .	1974	GCCAGCATGAGTGAGGTGCATACTGATGAGCCTGAGGACTTTGCCTCGAAGGTCTTTTTT	2033
Qу	1201	GACCCATGTTCTTACCAGTGCCTGGAGAACTGTGGGGGCTGTACTCCTGACAGTGGTGAGG	1260
Db	2034	GACCCATGCTCTTACCAGTGCCTGGAGAACTGTGGAGCTGTCCTCCTGACTGTGGTGAGG	2093
Qу	1261	AAAGGGGGAGACATGTCAAAGACCATGTATGTGGACTACAAAACAGAGGATGGTTCTGCC	1320
Db	2094	AAAGGGGGAGATATATCCAAGACTATGTACGTGGACTACAAAACAGAGGACGGCTCTGCC	2153
Qy	1321	AATGCAGGGGCTGACTATGAGTTCACAGAGGGCACGGTGGTTCTGAAGCCAGGAGAGACC	1380
Db	2154	AATGCAGGGGCTGACTATGAGTTCACAGAAGGCACTGTGGTTCTGAAGCCAGGAGAGACC	2213
QУ	1381	CAGAAGGAGTTCTCCGTGGGCATAATTGATGACGACATTTTTGAGGAGGATGAACACTTC	1440
Db	2214	CAGAAGGAGTTCTCCGTGGGCATCATCGATGATGACATTTTTGAAGAGGATGAACACTTC	2273
Qу	1441	TTTGTAAGGTTGAGCAATGTCCGCATAGAGGAGGAGCAGCCAGAGGAGGGGGATGCCTCCA	1500
Db	2274	TTCGTGAGACTGAGCAATGTCCGTGTAGAAGAGGAGCAGCTGGAAGAGGGGATGACCCCC	2333
QУ	1501	GCAATATTCAACAGTCTTCCCTTGCCTCGGGCTGTCCTAGCCTCCCCTTGTGTGGCCACA	1560
Db	2334	GCCATCCTCAATAGTCTTCCTTTGCCACGGGCTGTCCTGGCTTCCCCTTGTGTGGCCACA	2393
Qу	1561	GTTACCATCTTGGATGATGACCATGCAGGCATCTTCACTTTTGAATGTGATACTATTCAT	1620
Db	2394	GTAACCATCTTGGATGATGACCATGCAGGAATTTTCACTTTTGAATGTGATACCATTCAT	2453
Qу	1621	GTCAGTGAGAGTATTGGTGTTATGGAGGTCAAGGTTCTGCGGACATCAGGTGCCCGGGGT	1680
Dh	2454	CTCACTGAAACTATTCCTCTTATGGAACTCAAGGTTTTTGAGGACATCGGGTGCCCGGGC	2513.

QУ	1681	ACAGTCATCGTCCCCTTTAGGACAGTAGAAGGGACAGCCAAGGGTGGCGGTGAGGACTTT	1740
Db	2514	ACAGTCATCGTCCCTTTTAGGACAGTAGAAGGAACAGCCAAGGGTGGTGAGGACTTT	2573
Qу	1741	GAAGACACATATGGGGAGTTGGAATTCAAGAATGATGAAACTGTGAAAACCATAAGGGTT	1800
Db	2574	GAAGATACTTATGGGGAGCTGGAGTTTAAGAATGATGAAAACGGTGAAAACCATAAGGGTT	2633
Qу	1801	AAAATAGTAGATGAGGAGGAATACGAAAGGCAAGAGAATTTCTTCATTGCCCTTGGTGAA	1860
Db	2634	AAAATAGTAGATGAGGAGGAGTACGAAAGGCAAGAGAATTTCTTCATTGCCCTTGGTGAA	2693
 Qy	1861	CCGAAATGGATGGAACGTGGAATATCAGATGTGACAGACAGG	1902
Db	2694	CCGAAATGGATGGAACGTGGAATATCAGCGCTCCTGTTATCTCCAGAGGTGACAGACA	2753
Qу	1903	AAGCTGACTATGGAAGAAGAGGAGGCCAAGAGGATAGCAGAGATGGGAAAGCCAGTATTG	1962
Db	2754	AAGCTGACTATGGAGGAAGAGGAGGCCAAGAGAATAGCAGAGATGGGAAAGCCAGTATTG	2813
QУ	1963	GGTGAACACCCCAAACTAGAAGTCATCATTGAAGAGTCCTATGAGTTCAAGACTACGGTG	2022
Db	2814	GGTGAACACCCTAAACTAGAGGTCATCATTGAAGAGTCCTATGAGTTCAAGAGTACAGTG	2873
QУ	2023	GACAAACTGATCAAGAAGACAAACCTGGCCTTGGTTGTGGGGACCCATTCCTGGAGGGAC	2082
Db	2874	GATAAACTGATCAAGAAGACAAACCTGGCATTGGTTGTGGGGGACCCATTCCTGGAGGGAC	2933
Qу	2083	CAGTTCATGGAGGCCATCACCGTCAGTGCAGCAGGGGATGAGGATGAGGATGAATCCGGG	2142
Db	2934	CAATTCATGGAAGCCATCACTGTTAGTGCAGCAGGAGATGAGGAGGAAGATGAATCTGGA	2993
Qу	2143	GAGGAGAGGCTGCCCTCCTGCTTTGACTACGTCATGCACTTCCTGACTGTCTTCTGGAAG	2202
Db	2994	GAGGAGAGGCTGCCATCATGCTTTGACTATGTCATGCACTTCCTGACGGTCTTTTGGAAG	3053
Qу	2203	GTGCTGTTTGCCTGTGTGCCCCCACAGAGTACTGCCACGGCTGGGCCTGCTTCGCCGTC	2262
Db	3054	GTGCTCTTTGCCTGTGTCCCCCCACAGAGTACTGCCATGGCTGGGCCTGCTTCGTGGTC	3113
Qу	2263	TCCATCCTCATCATTGGCATGCTCACCGCCATCATTGGGGACCTGGCCTCGCACTTCGGC	2322
Db	3114	TCCATCCTCATCATCGGCATGCTCACCGCCATCATCGGGGACCTGGCCTCTCACTTCGGC	3173
Qу	2323	TGCACCATTGGTCTCAAAGATTCAGTCACAGCTGTTGTTTTCGTGGCATTTGGCACCTCT	2382
Db	3174	TGCACCATCGGGCTCAAGGATTCGGTCACAGCTGTTGTTTTTGTGGCATTCGGCACCTCT	3233
Qу	2383	GTCCCAGATACGTTTGCCAGCAAAGCTGCTGCCCTCCAGGATGTATATGCAGACGCCTCC	2442
Db	3234	GTGCCAGATACATTTGCCAGCAAAGCTGCTGCCCTGCAGGATGTGTATGCAGATGCTTCT	3293
Qу	2443	ATTGGCAACGTGACGGCCAGCAACGCCGTCAATGTCTTCCTGGGCATCGGCCTGGCCTGG	2502
Db	3294	ATTGGCAATGTCACCGGCAGTAATGCTGTCAATGTCTTCCTGGGTATTGGTTTTGGCCTGG	3353

```
Qу
            3354 TCCGTCGCCGCCATCTACTGGGCCATGCAGGGACAGGAGTTCCATGTGTCCGCTGGCACT 3413
Db
       2563 CTGGCCTTCTCCGTCACCCTCTTCACCATCTTTGCATTTGTCTGCATCAGCGTGCTCTTG 2622
Qу
            3414 CTGGCCTTCTCGGTCACTCTTTTCACCATCTTTGCATTTGTCTGCCTCAGTGTGCTCTTG 3473
Db
       2623 TACCGAAGGCGGCCGCACCTGGGAGGGGAGCTTGGTGGCCCCCGTGGCTGCAAGCTCGCC 2682
Qy
            3474 TACCGTCGGCGGCCCCACCTGGGCGGGGAGCTTGGAGGTCCTCGTGGCTGCAAGCTTGCC 3533
Db
       2683 ACAACATGGCTCTTTGTGAGCCTGTGGCTCCTCTACATACTCTTTGCCACACTAGAGGCC 2742
Qy
            *1111 * *1111*11*11*11*11*11*1*11*11*1***
       3534 ACAACGTGGCTCTTTGTGAGCCTGTGGCTCCTCTACGTACTCTTTGCCACGCTGGAGGCC 3593
Db
       2743 TATTGCTACATCAAGGGGTTCTAA 2766
Qу
            3594 TACTGCTACATCAAGGGGTTCTGA 3617
Db
RESULT 13
HSA508602
LOCUS
          HSA508602
                               3838 bp
                                         mRNA
                                                linear
                                                        PRI 20-JAN-2003
          Homo sapiens partial mRNA for Na+/Ca2+ exchanger isoform 4 (NACAIS4
DEFINITION
          gene).
ACCESSION
          AJ508602
VERSION
          AJ508602.1 GI:27805124
KEYWORDS
          Na+/Ca2+ exchanger isoform 4; NACAIS4 gene.
SOURCE
          Homo sapiens (human)
          Homo sapiens
 ORGANISM
          Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
          Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
REFERENCE
 AUTHORS
          Lindgren, R.M., Bongcam-Rudloff, E., Nister, M. and Heller, S.
 TITLE
          Homo sapiens partial mRNA for Na+/Ca2+ exchanger isoform 4
 JOURNAL
          Unpublished
REFERENCE
          2 (bases 1 to 3838)
 AUTHORS
          Bongcam-Rudloff, E.
          Direct Submission
 TITLE
 JOURNAL
          Submitted (20-SEP-2002) Bongcam-Rudloff E., Animal Genetics-SLU,
          Linnaeus Centre for Bioinformatics, Box 598, 75123 Uppsala, SWEDEN
FEATURES
                  Location/Qualifiers
                  1. .3838
    source
                  /organism="Homo sapiens"
                  /mol type="mRNA"
                  /db xref="taxon:9606"
                  /chromosome="14"
                  /tissue type="brain"
    gene
                  1. .3838
                  /gene="NACAIS4"
    CDS
                  <1. .2316
                  /gene="NACAIS4"
                  /codon start=1
                  /product="Na+/Ca2+ exchanger isoform 4"
                  /protein id="CAD48420.1"
                  /db xref="GI:27805125"
```

/translation="SLIEVCGHGFIAGDLGPSTIVGSAAFNMFIIIGICVYVIPDGET RKIKHLRVFFITAAWSIFAYIWLYMILAVFSPGVVQVWEGLLTLFFFPVCVLLAWVAD KRLLFYKYMHKKYRTDKHRGIIIETEGDHPKGIEMDGKMMNSHFLDGNLVPLEGKEVD ESRREMIRILKDLKQKHPEKDLDQLVEMANYYALSHQQKSRAFYRIQATRMMTGAGNI LKKHAAEQAKKASSMSEVHTDEPEDFISKVFFDPCSYQCLENCGAVLLTVVRKGGDMS KTMYVDYKTEDGSANAGADYEFTEGTVVLKPRETQKEFSVGIIDDDIFEEDEHFFVRL SNVRIEEEQPEEGMPPAIFNSLPLPRAVLASPCVATVTILDDDHAGIFTFECDTIHVS ESIGVMGVKVLRTSGARGTVIVPFRTVEGTAKGGGEDFEDTYGELEFKNDETVKTIRV KIVDEEEYERQENFFIALGEPKWMERGISDVTDRKLTMEEEEAKRIAEMGKPVLGEHP KLEVIIEESYEFKTTVDKLIKKTNLALVVGTHSWRDQFMEAITVSAAGDEDEDESGEE RLPSCFDYVMHFLTVFWKVLFACVPPTEYCHGWACFAVSILIIGMLTAIIGDLASHFG CTIGLKDSVTAVVFVAFGTSVPDTFASKAAALQDVYADASIGNVTGSNAVNVFLGIGL AWSVAAIYWALQGQEFHVSAGTLAFSVTLFTIFAFVCISVLLYRRRPHLGGELGGPRG CKLATTWLFVSLWLLYILFATLEAYCYIKGF"

## ORIGIN

Query Match 83.6%; Score 2312.8; DB 9; Length 3838; Best Local Similarity 99.9%; Pred. No. 0;							
Matches	231	4; Conservative 0; Mismatches 2; Indels 0; Gaps	0;				
Qу	451	TCTTTAATTGAGGTGTGGTCATGGGTTCATTGCTGGTGATCTGGGACCTTCTACCATT	510				
Db	1	TCTTTAATTGAGGTGTGTGGTCATGGGTTCATTGCTGGTGATCTGGGACCTTCTACCATT	60				
Qy	511	GTAGGGAGTGCAGCCTTCAACATGTTCATCATCATTGGCATCTGTGTCTACGTGATCCCA	570				
Db	61	GTAGGGAGTGCAGCCTTCAACATGTTCATCATCATTGGCATCTGTGTCTACGTGATCCCA	120				
Qy	571	GACGGAGAGACTCGCAAGATCAAGCATCTACGAGTCTTCTTCATCACCGCTGCTTGGAGT	630				
Db	121		180				
Qy	631	ATCTTTGCCTACATCTGGCTCTATATGATTCTGGCAGTCTTCTCCCCTGGTGTGGTCCAG	690				
Db	181		240				
Qy	691	GTTTGGGAAGGCCTCCTCACTCTTCTTCTTTCCAGTGTGTCCTTCTGGCCTGGGTG	750				
Db	241		300				
Qy	751	GCAGATAAACGACTGCTCTTCTACAAATACATGCACAAAAAGTACCGCACAGACAAACAC	810				
Db	301		360				
Qу	811	CGAGGAATTATCATAGAGACAGAGGGTGACCACCCTAAGGGCATTGAGATGGATG	870				
Db	361		420				
Qу	871	ATGATGAATTCCCATTTTCTAGATGGGAACCTGGTGCCCCTGGAAGGGAAGGAA	930				
Db	421		480				
Qу	931	GAGTCCCGCAGAGAGATGATCCGGATTCTCAAGGATCTGAAGCAAAAACACCCAGAGAAG	990				
Db	481		540				
Qy	991	GACTTAGATCAGCTGGTGGAGATGGCCAATTACTATGCTCTTTCCCACCAACAGAAGAGC	1050				

Db	541		600
Qу	1051	CGCGCCTTCTACCGTATCCAAGCCACTCGTATGATGACTGGTGCAGGCAATATCCTGAAG	1110
Db	601	CGCGCCTTCTACCGTATCCAAGCCACTCGTATGATGACTGGTGCAGGCAATATCCTGAAG	660
Qу	1111	AAACATGCAGCAGAACAAGCCAAGAAGGCCTCCAGCATGAGCGAGGTGCACACCGATGAG	1170
Db	661		720
Qу	1171	$\tt CCTGAGGACTTTATTTCCAAGGTCTTCTTTGACCCATGTTCTTACCAGTGCCTGGAGAAC$	1230
Db	721		780
Qу	1231	TGTGGGGCTGTACTCCTGACAGTGGTGAGGAAAGGGGGAGACATGTCAAAGACCATGTAT	1290
Db	781	TGTGGGGCTGTACTCCTGACAGTGGTGAGGAAAGGGGGGAGACATGTCAAAGACCATGTAT	840
Qу	1291	GTGGACTACAAAACAGAGGATGGTTCTGCCAATGCAGGGGCTGACTATGAGTTCACAGAG	1350
Db	841	GTGGACTACAAAACAGAGGATGGTTCTGCCAATGCAGGGGCTGACTATGAGTTCACAGAG	900
Qу	1351	GGCACGGTGGTTCTGAAGCCAGGAGAGACCCAGAAGGAGTTCTCCGTGGGCATAATTGAT	1410
Db	901	GGCACGGTGGTTCTGAAGCCACGAGAGACCCAGAAGGAGTTCTCCGTGGGCATAATTGAT	960
Qу	1411	GACGACATTTTTGAGGAGGATGAACACTTCTTTGTAAGGTTGAGCAATGTCCGCATAGAG	1470
Db	961	GACGACATTTTTGAGGAGGATGAACACTTCTTTGTAAGGTTGAGCAATGTCCGCATAGAG	1020
QУ	1471	GAGGAGCAGCCAGAGGAGGGGATGCCTCCAGCAATATTCAACAGTCTTCCCTTGCCTCGG	1530
Db	1021	GAGGAGCAGCCAGAGGAGGGGATGCCTCCAGCAATATTCAACAGTCTTCCCTTGCCTCGG	1080
Qу	1531	GCTGTCCTAGCCTCCCCTTGTGTGGCCACAGTTACCATCTTGGATGATGACCATGCAGGC	1590
Db	1081	GCTGTCCTAGCCTCCCCTTGTGTGGCCACAGTTACCATCTTGGATGATGACCATGCAGGC	1140
Qу		ATCTTCACTTTTGAATGTGATACTATTCATGTCAGTGAGAGTATTGGTGTTATGGAGGTC	
Db	1141	ATCTTCACTTTTGAATGTGATACTATTCATGTCAGTGAGAGTATTGGTGTTATGGGGGTC	1200
Qу		AAGGTTCTGCGGACATCAGGTGCCCGGGGTACAGTCATCGTCCCCTTTAGGACAGTAGAA	
Db		AAGGTTCTGCGGACATCAGGTGCCCGGGGTACAGTCATCGTCCCCTTTAGGACAGTAGAA	
Qу	1711	GGGACAGCCAAGGGTGGCGGTGAGGACTTTGAAGACACATATGGGGAGTTGGAATTCAAG	1770
Db	1261	GGGACAGCCAAGGGTGGCGGTGAGGACTTTGAAGACACATATGGGGAGTTGGAATTCAAG	1320
Qу		AATGATGAAACTGTGAAAACCATAAGGGTTAAAATAGTAGATGAGGAGGAATACGAAAGG	
Db		AATGATGAAACTGTGAAAACCATAAGGGTTAAAATAGTAGATGAGGAGGAATACGAAAGG	
Qу	1831	CAAGAGAATTTCTTCATTGCCCTTGGTGAACCGAAATGGATGG	1890

Db	1381	CAAGAGAATTTCTTCATTGCCCTTGGTGAACCGAAATGGATGG	1440
Qy	1891	GTGACAGACAGGAAGCTGACTATGGAAGAAGAGGAGGCCAAGAGGATAGCAGAGATGGGA	1950
Db	1441	GTGACAGACAGGAAGCTGACTATGGAAGAAGAGGAGGCCAAGAGGATAGCAGAGATGGGA	1500
QУ	1951	AAGCCAGTATTGGGTGAACACCCCAAACTAGAAGTCATCATTGAAGAGTCCTATGAGTTC	2010
Db	1501	AAGCCAGTATTGGGTGAACACCCCAAACTAGAAGTCATCATTGAAGAGTCCTATGAGTTC	1560
Qу	2011	AAGACTACGGTGGACAAACTGATCAAGAAGACAAACCTGGCCTTGGTTGTGGGGACCCAT	2070
Db	1561	AAGACTACGGTGGACAAACTGATCAAGAAGACAAACCTGGCCTTGGTTGTGGGGACCCAT	1620
Qу	2071	TCCTGGAGGGACCAGTTCATGGAGGCCATCACCGTCAGTGCAGCAGGGGATGAGGATGAG	2130
Db	1621	TCCTGGAGGGACCAGTTCATGGAGGCCATCACCGTCAGTGCAGCAGGGGATGAGGATGAG	1680
QУ	2131	GATGAATCCGGGGAGGAGGCTGCCCTCCTGCTTTGACTACGTCATGCACTTCCTGACT	2190
Db	1681	GATGAATCCGGGGAGGAGGCTGCCCTCCTGCTTTGACTACGTCATGCACTTCCTGACT	1740
QУ	2191	GTCTTCTGGAAGGTGCTGTTTGCCTGTGTGCCCCCCACAGAGTACTGCCACGGCTGGGCC	2250
Db	1741	GTCTTCTGGAAGGTGCTGTTTGCCTGTGTGCCCCCCACAGAGTACTGCCACGGCTGGGCC	1800
QУ	2251	TGCTTCGCCGTCTCCATCCTCATCATTGGCATGCTCACCGCCATCATTGGGGACCTGGCC	2310
Db	1801	TGCTTCGCCGTCTCCATCCTCATCATTGGCATGCTCACCGCCATCATTGGGGACCTGGCC	1860
Qy	2311	TCGCACTTCGGCTGCACCATTGGTCTCAAAGATTCAGTCACAGCTGTTGTTTTCGTGGCA	2370
Db	1861	TCGCACTTCGGCTGCACCATTGGTCTCAAAGATTCAGTCACAGCTGTTGTTTTCGTGGCA	1920
QУ	2371	TTTGGCACCTCTGTCCCAGATACGTTTGCCAGCAAAGCTGCTGCCCTCCAGGATGTATAT	2430
Db	1921	TTTGGCACCTCTGTCCCAGATACGTTTGCCAGCAAAGCTGCTGCCCTCCAGGATGTATAT	1980
Qy	2431	GCAGACGCCTCCATTGGCAACGTGACGGGCAGCAACGCCGTCAATGTCTTCCTGGGCATC	2490
Db	1981	GCAGACGCCTCCATTGGCAACGTGACGGGCAGCAACGCCGTCAATGTCTTCCTGGGCATC	2040
Qу	2491	GGCCTGGCCTGGTCCGTGGCCGCCATCTACTGGGCTCTGCAGGGACAGGAGTTCCACGTG	2550
Db	2041	GGCCTGGCCTGGTCCGTGCCCCATCTACTGGGCTCTGCAGGGACAGGAGTTCCACGTG	2100
Qу	2551	TCGGCCGGCACACTGGCCTTCTCCGTCACCCTCTTCACCATCTTTGCATTTGTCTGCATC	2610
Db	2101	TCGGCCGGCACACTGGCCTTCTCCGTCACCCTCTTCACCATCTTTGCATTTGTCTGCATC	2160
Qу	2611	AGCGTGCTCTTGTACCGAAGGCGGCCGCACCTGGGAGGGGAGCTTGGTGGCCCCCGTGGC	2670
Db .	2161	AGCGTGCTCTTGTACCGAAGGCGGCCGCACCTGGGAGGGGAGCTTGGTGGCCCCCGTGGC	2220
Qу	2671	TGCAAGCTCGCCACAACATGGCTCTTTGTGAGCCTGTGGCTCCTCTACATACTCTTTGCC	2730
Db	2221	TGCAAGCTCGCCACAACATGGCTCTTTGTGAGCCTGTGGCTCCTCTACATACTCTTTGCC	2280

Qy 2731 ACACTAGAGGCCTATTGCTACATCAAGGGGTTCTAA 2766

Db 2281 ACACTAGAGGCCTATTGCTACATCAAGGGGTTCTAA 2316

RESULT 14 AF453257

LOCUS AF453257 3435 bp mRNA linear ROD 10-DEC-2001

DEFINITION Mus musculus sodium/calcium exchanger (Slc8a3) mRNA, complete cds.

ACCESSION AF453257

VERSION AF453257.1 GI:17432810

KEYWORDS

SOURCE Mus musculus (house mouse)

ORGANISM Mus musculus

Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.

REFERENCE 1 (bases 1 to 3435)

AUTHORS Kraev, A.

TITLE Towards complete inventory of calcium transporters of the house

mouse

JOURNAL Unpublished

REFERENCE 2 (bases 1 to 3435)

AUTHORS Kraev, A.

TITLE Direct Submission

JOURNAL Submitted (27-NOV-2001) Mt. Sinai Hospital, Samuel Lunenfeld

Research Institute, 600 University Avenue, Toronto, Ontario M5G

1X5, Canada

FEATURES Location/Qualifiers

source 1. .3435

/organism="Mus musculus"

/mol\_type="mRNA"
/strain="C57BL/6J"
/db\_xref="taxon:10090"

/tissue type="skeletal muscle"

/dev stage="adult"

gene  $1..\overline{3}435$ 

/gene="Slc8a3"

CDS 603..3389

/gene="Slc8a3"
/codon start=1

/product="sodium/calcium exchanger"

/protein\_id="AAL39160.1" /db xref="GI:17432811"

/translation="MAWLRLQPLTSAFLHFGLVTFVLFLNCLRAEAGDSGDVPSAGQN NESCSGSSDCKEGVILPIWYPENPSLGDKIARVIVYFVALIYMFLGVSIIADRFMASI EVITSQEREVTIKKPNGETSTTTIRVWNETVSNLTLMALGSSAPEILLSLIEVCGHGF IAGDLGPSTIVGSAAFNMFIIIGICVYVIPDGETRKIKHLRVFFVTAAWSIFAYIWLY MILAVFSPGVVQVWEGLLTLFFFPVCVLLAWVADKRLLFYKYMHKKYRTDKHRGIIIE TEGDHPKGIEMDGKMMNSHFLDGNFTPLEGKEVDESRREMIRILKDLKQKHPEKDLDQ LVEMANYYALSHQQKSRAFYRIQATRMMTGAGNILKKHAAEQAKKTSSMSEVHTDEPE DFASKVFFDPCSYQCLENCGAVLLTVVRKGGDISKTMYVDYKTEDGSANAGADYEFTE GTVVLKPGETQKEFSVGIIDDDIFEEDEHFFVRLSNVRVEEEQLAEGMLPAILNSLPL PRAVLASPCVATVTILDDDHAGIFTFECDTIHVSESIGVMEVKVLRTSGARGTVIVPF RTVEGTAKGGGEDFEDAYGELEFKNDETVKTIHIKVIDDKAYEKNKNYVIEMMGPRMV DMSVQKALLLSPEVTDRKLTVEEEEAKRIAEMGKPVLGEHPKLEVIIEESYEFKSTVD KLIKKTNLALVVGTHSWRDQFMEAITVSAGGDEDEDESGEERLPSCFDYVMHFLTVFW

KVLFACVPPTEYCPGWACFVVSILIIGMLTAIIGDLASHFGCTIGLKDSVTAVVFVAF GTSVPDTFASKAAALQDVYADASIGNVTGSNAVNVFLGIGLAWSVAAIYWAMQGQEFH VSAGTLAFSVTLFTIFAFVCLSVLLYRRRPHLGGELGGPRGCKLATTWLFVSLWLLYI LFATLEAYCYIKGF"

## ORIGIN

	Query Match Best Local	82.8%; Score 2290.2; DB 10; Length 3435; Similarity 89.3%; Pred. No. 0;	
		8; Conservative 0; Mismatches 278; Indels 21; Gaps	1;
Qу	1	ATGGCGTGGTTAAGGTTGCAGCCTCTCACCTCTGCCTTCCTCCATTTTGGGCTGGTTACC	60
Db	603	ATGGCGTGGTTACGGCTGCAGCCTCTCACCTCTGCCTTCCTCCATTTTGGGCTGGTTACT	662
Qу	61	TTTGTGCTCTTCCTGAATGGTCTTCGAGCAGAGGCTGGTGGCTCAGGGGACGTGCCAAGC	120
Db	663		722
Qу	121	ACAGGCAGAACAATGAGTCCTGTTCAGGGTCATCGGACTGCAAGGAGGGTGTCATCCTG	180
Db	723	GCAGGGCAGAACAATGAGTCCTGTTCGGGGTCATCAGACTGCAAGGAGGGTGTCATTTTG	782
Qу	181	CCAATCTGGTACCCGGAGAACCCTTCCCTTGGGGACAAGATTGCCAGGGTCATTGTCTAT	240
Db	783		842
Qу	241	TTTGTGGCĆCTGATATACATGTTCCTTGGGGTGTCCATCATTGCTGACCGCTTCATGGCA	300
Db	843		902
Qу	301	TCTATTGAAGTCATCACCTCTCAAGAGAGGGGAGGTGACAATTAAGAAACCCAATGGAGAA	360
Db	903		962
Qу	361	ACCAGCACAACCACTATTCGGGTCTGGAATGAAACTGTCTCCAACCTGACCCTTATGGCC	420
Db	963		1022
Qу	421	CTGGGTTCCTCTGAGATACTCCTCTCTTTAATTGAGGTGTGTCATGGGTTC	480
Db	1023		1082
Qу	481	ATTGCTGGTGATCTGGGGACCTTCTACCATTGTAGGGAGTGCAGCCTTCAACATGTTCATC	540
Db	1083		1142
Qу	541	ATCATTGGCATCTGTGTCTACGTGATCCCAGACGGAGAGACTCGCAAGATCAAGCATCTA	600
Db	1143		1202
Qу	601	CGAGTCTTCTTCATCACCGCTGCTTGGAGTATCTTTGCCTACATCTGGCTCTATATGATT	660
Db	1203		1262
Qу	661	CTGGCAGTCTTCTCCCCTGGTGTGGTCCAGGTTTGGGAAGGCCTCCTCACTCTTCTTC	720
Db	1263		1322

Qy	721	TTTCCAGTGTGTCCTTCTGGCCTGGGTGGCAGATAAACGACTGCTCTTCTACAAATAC	780
Db	1323	TTTCCCGTGTGTCCTGCTGGCTTGGGTGGCAGATAAGCGACTGCTCTTCTACAAATAC	1382
Qу	781	ATGCACAAAAGTACCGCACAGACAACACCGAGGAATTATCATAGAGACAGAGGGTGAC	840
Db	1383	ATGCACAAAAATACCGCACAGATAAACACCGAGGAATTATCATTGAGACAGAGGGTGAC	1442
Qу	841	CACCCTAAGGGCATTGAGATGGGAAAATGATGAATTCCCATTTTCTAGATGGGAAC	900
Db	1443	CACCCTAAGGGCATTGAGATGGGAAAATGATGATTCTCACTTTCTAGATGGGAAC	1502
 Qy	901	CTGGTGCCCCTGGAAGGAAGGAAGTGGATGAGTCCCGCAGAGAGATGATCCGGATTCTC	960
Db	1503	TTTACACCTTTGGAAGGAAAGGAGGTAGATGATCTCGCAGGGAAATGATCCGGATTCTA	1562
Qy	961	AAGGATCTGAAGCAAAAACACCCAGAGAAGGACTTAGATCAGCTGGTGGAGATGGCCAAT	1020
Db	1563	AAGGATCTGAAACAACACCCAGAAAAGGACCTAGATCAGCTGGTGGAGATGGCCAAT	1622
Qу	1021	TACTATGCTCTTTCCCACCAACAGAAGAGCCGCGCCTTCTACCGTATCCAAGCCACTCGT	1080
Db	1623	TACTATGCTCTTTCCCATCAACAGAAGAGCCGTGCTTTCTACCGCATCCAAGCCACCCGG	1682
Qy	1081	ATGATGACTGGTGCAGGCAATATCCTGAAGAAACATGCAGCAGAACAAGCCAAGAAGGCC	1140
Db	1683	ATGATGACTGGTGCGGGCAATATACTTAAGAAGCATGCAGCCGAGCAAGCCAAGAAGACC	1742
Qy	1141	TCCAGCATGAGCGAGGTGCACACCGATGAGCCTGAGGACTTTATTTCCAAGGTCTTCTTT	1200
Db	1743	TCCAGCATGAGCGAGGTGCATACCGATGAGCCGGAGGACTTTGCCTCTAAGGTCTTCTTT	1802
Qy	1201	GACCCATGTTCTTACCAGTGCCTGGAGAACTGTGGGGCTGTACTCCTGACAGTGGTGAGG	1260
Db	1803	GACCCATGTTCTTATCAGTGCCTGGAGAACTGTGGAGCTGTCCTCCTGACCGTGGTGAGG	1862
Qy	1261	AAAGGGGGAGACATGTCAAAGACCATGTATGTGGACTACAAAACAGAGGATGGTTCTGCC	1320
Db	1863	AAAGGGGGAGATATATCCAAGACCATGTACGTGGACTACAAAACAGAGGACGGCTCCGCC	1922
Qy	1321	AATGCAGGGGCTGACTATGAGTTCACAGAGGGCACGGTGGTTCTGAAGCCAGGAGAGACC	1380
Db	1923	AATGCAGGGGCAGACTATGAGTTCACAGAGGGCACTGTGGTTCTGAAGCCAGGAGAGACC	1982
Qy	1381	CAGAAGGAGTTCTCCGTGGGCATAATTGATGACGACATTTTTGAGGAGGATGAACACTTC	1440
Db	1983	CAGAAGGAGTTCTCTGTGGGCATCATTGATGATGACATTTTTGAGGAGGATGAACACTTC	2042
 Qy	1441	TTTGTAAGGTTGAGCAATGTCCGCATAGAGGAGGAGGAGCCAGAGGAGGAGGGGATGCCTCCA	1500
Db	2043	TTTGTGAGGCTGAGCAATGTCCGTGTAGAAGAGGAGCAGCTGGCGGAGGGGATGCTCCCA	2102
Qу	1501	GCAATATTCAACAGTCTTCCCTTGCCTCGGGCTGTCCTAGCCTCCCCTTGTGTGGCCACA	1560
Db	2103	GCAATACTCAATAGTCTTCCTTTGCCTCGGGCTGTCCTGGCCTCCCCTTGTGTGGCCACA	2162

Qу	1561	GTTACCATCTTGGATGATGACCATGCAGGCATCTTCACTTTTGAATGTGATACTATTCAT	1620
Db	2163		2222
Qу	1621	GTCAGTGAGAGTATTGGTGTTATGGAGGTCAAGGTTCTGCGGACATCAGGTGCCCGGGGT	1680
Db	2223	GTCAGTGAAAGTATTGGTGTTATGGAAGTCAAGGTTTTGAGGACATCAGGTGCCAGGGGC	2282
Qу	1681	ACAGTCATCGTCCCCTTTAGGACAGTAGAAGGGACAGCCAAGGGTGGCGGTGAGGACTTT	1740
Db	2283	ACAGTCATCGTCCCTTTTAGGACAGTAGAAGGGACAGCCAAGGGTGGTGGCGAGGACTTT	2342
Qу	1741	GAAGACACATATGGGGAGTTGGAATTCAAGAATGATGAAACTGTGAAAACCATAAGGGTT	1800
Db	2343	GAAGATGCATATGGGGAGCTGGAGTTCAAGAATGATGAAACAGTCAAAACAATTCACATC	2402
Qу	1801	AAAATAGTAGATGAGGAGGAATACGAAAGGCAAGAGAATTTCTTCATTGCCCTTGGTGAA	1860
Db	2403	AAGGTAATTGATGATAAGGCGTATGAGAAAAACAAGAATTACGTCATTGAGATGATGGGC	2462
QУ	1861	CCGAAATGGATGGAACGTGGAATATCAGATGTGACAGAC	1899
Db	2463	CCCCGCATGGTGGATATGAGTGTTCAGAAAGCGCTCCTGTTATCTCCAGAAGTGACAGAC	2522
QУ	1900	AGGAAGCTGACTATGGAAGAAGAGGAGGCCAAGAGGATAGCAGAGATGGGAAAGCCAGTA	1959
Db	2523	AGGAAGCTGACTGTGGAGGAAGAGGAAGCCAAGAGAATAGCAGAGATGGGAAAGCCAGTA	2582
Qу	1960	TTGGGTGAACACCCCAAACTAGAAGTCATCATTGAAGAGTCCTATGAGTTCAAGACTACG	2019
Db	2583	TTGGGTGAACACCCCAAACTAGAGGTCATCATTGAAGAGTCCTATGAGTTCAAGAGTACA	2642
QУ	2020	GTGGACAAACTGATCAAGAAGACAAACCTGGCCTTGGTTGTGGGGACCCATTCCTGGAGG	2079
Db	2643	GTGGATAAGCTGATCAAGAAGACAAACCTGGCATTGGTTGTGGGGGACCCATTCCTGGAGG	2702
QУ	2080	GACCAGTTCATGGAGGCCATCACCGTCAGTGCAGCAGGGGATGAGGATGAGTCC	2139
Db	2703	GACCAGTTCATGGAAGCCATCACTGTTAGTGCAGGAGGGGATGAGGATGAAGACGAATCT	2762
Qу	2140	GGGGAGGAGGCTGCCCTCCTGCTTTGACTACGTCATGCACTTCCTGACTGTCTTCTGG	2199
Db	2763	GGAGAGAGAGGCTGCCATCCTGCTTTGACTACGTCATGCACTTCCTGACGGTCTTCTGG	2822
ΟУ	2200	AAGGTGCTGTTTGCCTGTGTGCCCCCACAGAGTACTGCCACGGCTGGGCCTGCTTCGCC	2259
Db	2823	AAGGTGCTCTTTGCCTGTGTGCCCCCACAGAGTACTGCCCCGGCTGGGCCTGCTTCGTG	2882
Qу	2260	GTCTCCATCCTCATCATTGGCATGCTCACCGCCATCATTGGGGACCTGGCCTCGCACTTC	2319
Db	2883	GTCTCCATCCTCATCATTGGCATGCTCACCGCCATCATCGGGGACCTGGCCTCTCACTTC	2942
Qу	2320	GGCTGCACCATTGGTCTCAAAGATTCAGTCACAGCTGTTGTTTTCGTGGCATTTGGCACC	2379
Db	2943	GGCTGCACCATCGGGCTCAAGGATTCGGTCACAGCTGTTGTTTTTGTGGCATTCGGCACC	3002
Qу	2380	TCTGTCCCAGATACGTTTGCCAGCAAAGCTGCTGCCCTCCAGGATGTATATGCAGACGCC	2439

Db	300	
Qу	244	0 TCCATTGGCAACGTGACGGGCAGCAACGCCGTCAATGTCTTCCTGGGCATCGGCCTGGCC 2499
Db	306	
Qу	250	0 TGGTCCGTGGCCGCCATCTACTGGGCTCTGCAGGGACAGGAGTTCCACGTGTCGGCCGGC
Db	312	
Qу	256	0 ACACTGGCCTTCTCCGTCACCCTCTTCACCATCTTTGCATTTGTCTGCATCAGCGTGCTC 2619
Db - ·	318	
Qу	262	0 TTGTACCGAAGGCGCCCCCCGGGAGGGGAGCTTGGTGGCCCCCGTGGCTGCAAGCTC 2679
Db	324	
Qу	268	0 GCCACAACATGGCTCTTTGTGAGCCTGTGGCTCCTCTACATACTCTTTGCCACACTAGAG 2739
Db	330	
Qу	274	0 GCCTATTGCTACATCAAGGGGTTCTAA 2766
Db	336	
RESULT 1: HSNCX22 LOCUS DEFINITION ACCESSION VERSION KEYWORDS SOURCE ORGANI:	NO N	HSNCX22 2534 bp DNA linear PRI 12-NOV-2000 Homo sapiens partial SCL8A3 gene for solute carrier family 8 (sodium/calcium exchanger), member 3 (SCL8A3), exon 2.  X93017 X93017.1 GI:1067133 SLC8A3 gene; sodium-calcium exchanger. Homo sapiens (human) Homo sapiens Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
REFERENCI		1
AUTHOR:	S	Kraev, A., Chumakov, I. and Carafoli, E.  The organization of the human gene NCX1 encoding the sodium-calcium exchanger
JOURNA: MEDLINI PUBME:	Ε	Genomics 37 (1), 105-112 (1996) 97079665 8921376
REFERENC		2 (bases 1 to 2534)
AUTHOR	S	Kraev, A.S.
TITLE JOURNA	L	Direct Submission Submitted (14-NOV-1995) A.S. Kraev, Swiss Federal Institute of Technology, Laboratory of Biochemistry III, Universitaetstr. 16, Zurich, CH-8092, SWITZERLAND
COMMENT		Similar to X91213.
FEATURES		Location/Qualifiers
sou	rce	<pre>12534 /organism="Homo sapiens"</pre>

```
/mol_type="genomic DNA"
                /db_xref="taxon:9606"
                /chromosome="14"
                /map="q24.1"
                /cell line="WI38"
                /cell_type="fibroblast"
                /tissue type="lung"
                /clone lib="Stratagene genomic #946204"
                281. .2126
    gene
                /gene="SLC8A3"
                281. .2126
    exon
                /gene="SLC8A3"
                /product="solute carrier family 8 (sodium/calcium
                exchanger), member 3"
                /number=2
ORIGIN
                    64.6%;
 Query Match
                          Score 1786.4;
                                      DB 9;
                                          Length 2534;
 Best Local Similarity
                    99.9%;
                          Pred. No. 0;
 Matches 1787; Conservative
                         0; Mismatches
                                        1;
                                           Indels
                                                  0;
                                                     Gaps
                                                            0;
         1 ATGGCGTGGTTAAGGTTGCAGCCTCTCACCTCTGCCTTCCTCCATTTTGGGCTGGTTACC 60
Qу
           343 ATGGCGTGGTTAAGGTTGCAGCCTCTCACCTCTGCCTTCCTCCATTTTGGGCTGGTTACC 402
Db
        61 TTTGTGCTCTTCCTGAATGGTCTTCGAGCAGAGGCTGGTGGCTCAGGGGACGTGCCAAGC 120
Qу
           403 TTTGTGCTCTTCCTGAATGGTCTTCGAGCAGAGGCTGGTGGCTCAGGGGACGTGCCAAGC 462
Db
       121 ACAGGGCAGAACAATGAGTCCTGTTCAGGGTCATCGGACTGCAAGGAGGGTGTCATCCTG 180
Qу
           Db
       463 ACAGGGCAGAACAATGAGTCCTGTTCAGGGTCATCGGACTGCAAGGAGGGTGTCATCCTG 522
       181 CCAATCTGGTACCCGGAGAACCCTTCCCTTGGGGACAAGATTGCCAGGGTCATTGTCTAT 240
Qу
           523 CCAATCTGGTACCCGGAGAACCCTTCCCTTGGGGACAAGATTGCCAGGGTCATTGTCTAT 582
ĎЪ
       241 TTTGTGGCCCTGATATACATGTTCCTTGGGGTGTCCATCATTGCTGACCGCTTCATGGCA 300
Qу
           583 TTTGTGGCCCTGATATACATGTTCCTTGGGGTGTCCATCATTGCTGACCGCTTCATGGCA 642
Db
       301 TCTATTGAAGTCATCACCTCTCAAGAGAGGGAGGTGACAATTAAGAAACCCAATGGAGAA 360
Qу
           643 TCTATTGAAGTCATCACCTCTCAAGAGAGGGAGGTGACAATTAAGAAACCCAATGGAGAA 702
Db
       361 ACCAGCACACCACTATTCGGGTCTGGAATGAAACTGTCTCCAACCTGACCCTTATGGCC 420
Qу
           703 ACCAGCACAACCACTATTCGGGTCTGGAATGAAACTGTCTCCAACCTGACCCTTATGGCC 762
Db
       421 CTGGGTTCCTCTGCTCCTGAGATACTCCTCTTTTAATTGAGGTGTGTGGTCATGGGTTC 480
Qу
           Db
       763 CTGGGTTCCTCTGCTCCTGAGATACTCCTCTTTAATTGAGGTGTGTGGTCATGGGTTC 822
       481 ATTGCTGGTGATCTGGGACCTTCTACCATTGTAGGGAGTGCAGCCTTCAACATGTTCATC 540
Qу
           823 ATTGCTGGTGATCTGGGACCTTCTACCATTGTAGGGAGTGCAGCCTTCAACATGTTCATC 882
Db
```

Qу	541	ATCATTGGCATCTGTCTACGTGATCCCAGACGGAGAGACTCGCAAGATCAAGCATCTA	600
Db	883	ATCATTGGCATCTGTGTCTACGTGATCCCAGACGGAGAGACTCGCAAGATCAAGCATCTA	942
Qу	601	CGAGTCTTCTTCATCACCGCTGCTTGGAGTATCTTTGCCTACATCTGGCTCTATATGATT	660
Db	943	CGAGTCTTCTTCATCACCGCTGCTTGGAGTATCTTTGCCTACATCTGGCTCTATATGATT	1002
Qу	661	CTGGCAGTCTTCTCCCCTGGTGTGGTCCAGGTTTGGGAAGGCCTCCTCACTCTCTTCTTC	720
Db	1003	CTGGCAGTCTTCTCCCCTGGTGTGGTCCAGGTTTGGGAAGGCCTCCTCACTCTTCTTC	1062
Qу	721	TTTCCAGTGTGTCCTTCTGGCCTGGGTGGCAGATAAACGACTGCTCTTCTACAAATAC	780
Db	1063	TTTCCAGTGTGTCCTTCTGGCCTGGGTGGCAGATAAACGACTGCTCTTCTACAAATAC	1122
Qу	781	ATGCACAAAAGTACCGCACAGACAACACCGAGGAATTATCATAGAGACAGAGGGTGAC	840
Db	1123	ATGCACAAAAAGTACCGCACAGACAAACACCGAGGAATTATCATAGAGACAGAGGGTGAC	1182
Qу	841	CACCCTAAGGGCATTGAGATGGGAAAATGATGAATTCCCATTTTCTAGATGGGAAC	900
Db	1183	CACCCTAAGGGCATTGAGATGGGAAAATGATGAATTCCCATTTTCTAGATGGGAAC	1242
Qу	901	CTGGTGCCCCTGGAAGGGAAGGAAGTGGATGAGTCCCGCAGAGAGATGATCCGGATTCTC	960
Db	1243		1302
Qу	961	AAGGATCTGAAGCAAAAACACCCAGAGAAGGACTTAGATCAGCTGGTGGAGATGGCCAAT	1020
Db	1303		1362
Qу	1021	TACTATGCTCTTTCCCACCAACAGAAGAGCCGCGCCTTCTACCGTATCCAAGCCACTCGT	1080
Db	1363	TACTATGCTCTTTCCCACCAACAGAAGAGCCGCGCCTTCTACCGTATCCAAGCCACTCGT	1422
Qу	1081	ATGATGACTGGTGCAGGCAATATCCTGAAGAAACATGCAGCAGAACAAGCCAAGAAGGCC	1140
Db	1423	ATGATGACTGGTGCAGGCAATATCCTGAAGAAACATGCAGCAGAACAAGCCAAGAAGGCC	1482
Qу	1141	TCCAGCATGAGCGAGGTGCACACCGATGAGCCTGAGGACTTTATTTCCAAGGTCTTCTTT	1200
Db	1483	TCCAGCATGAGCGAGGTGCACACCGATGAGCCTGAGGACTTTATTTCCAAGGTCTTCTTT	1542
Qу	1201	GACCCATGTTCTTACCAGTGCCTGGAGAACTGTGGGGCTGTACTCCTGACAGTGGTGAGG	1260
Db	1543	GACCCATGTTCTTACCAGTGCCTGGAGAACTGTGGGGCTGTACTCCTGACAGTGGTGAGG	1602
Qу	1261	AAAGGGGGAGACATGTCAAAGACCATGTATGTGGACTACAAAACAGAGGATGGTTCTGCC	1320
Db	1603		1662
Qу	1321	AATGCAGGGGCTGACTATGAGTTCACAGAGGGCACGGTGGTTCTGAAGCCAGGAGAGACC	1380
Db	1663		1722
Qy	1381	CAGAAGGAGTTCTCCGTGGGCATAATTGATGACGACATTTTTGAGGAGGATGAACACTTC	1440

Db	1723		1782
Qу	1441	TTTGTAAGGTTGAGCAATGTCCGCATAGAGGAGGAGCAGCCAGAGGAGGGGGATGCCTCCA	1500
Db	1783	TTTGTAAGGTTGAGCAATGTCCGCATAGAGGAGGAGCAGCCAGAGGAGGAGGGATGCCTCCA	1842
Qу	1501	GCAATATTCAACAGTCTTCCCTTGCCTCGGGCTGTCCTAGCCTCCCCTTGTGTGGCCACA	1560
Db	1843	GCAATATTCAACAGTCTTCCCTTGCCTCGGGCTGTCCTAGCCTCCCCTTGTGTGGCCACA	1902
Qу	1561	GTTACCATCTTGGATGATGACCATGCAGGCATCTTCACTTTTGAATGTGATACTATTCAT	1620
Db	1903	-GTTACCATCTTGGATGATGACCATGCAGGCATCTTCACTTTTGAATGTGATACTATTCAT	1962
Qу	1621	GTCAGTGAGAGTATTGGTGTTATGGAGGTCAAGGTTCTGCGGACATCAGGTGCCCGGGGT	1680
Db	1963		2022
Qу	1681	ACAGTCATCGTCCCCTTTAGGACAGTAGAAGGGACAGCCAAGGGTGGCGGTGAGGACTTT	1740
Db	2023		2082
Qу	1741	GAAGACACATATGGGGAGTTGGAATTCAAGAATGATGAAACTGTGAAA 1788	
Db	2083	GAAGACACATATGGGGAGTTGGAATTCAAGAATGATGAAACTGTGTAA 2130	

Search completed: June 25, 2004, 12:31:10 Job time: 10422.3 secs

# GenCore version 5.1.6 Copyright (c) 1993 - 2004 Compugen Ltd.

OM nucleic - nucleic search, using sw model

Run on: June 25, 2004, 00:42:04; Search time 970.401 Seconds

(without alignments)

12108.934 Million cell updates/sec

Title: US-10-054-680-1

Perfect score: 2766

Sequence: 1 atggcgtggttaaggttgca.....gctacatcaaggggttctaa 2766

Scoring table: IDENTITY NUC

Gapop 10.0 , Gapext 1.0

Searched: 3373863 seqs, 2124099041 residues

Total number of hits satisfying chosen parameters: 6747726

Minimum DB seq length: 0

Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%

Maximum Match 100%

Listing first 45 summaries

Database : N Geneseq 29Jan04:\*

1: geneseqn1980s:\*

2: geneseqn1990s:\*

3: geneseqn2000s:\*

4: geneseqn2001as:\*

5: geneseqn2001bs:\*

geneseqn2002s:\*

7: geneseqn2003as:\* 8: geneseqn2003bs:\*

9: geneseqn2003cs:\*

10: geneseqn2004s:\*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

### SUMMARIES

Result		% Query					
No.	Score	Match	Length	DB	ID	Description	
1	2766	100.0	2766	6	ABQ78861		ion
2	2766	100.0	3812	6	ABQ78863	Abq78863 Human	ion
3	2764.4	99.9	2766	6	ABQ78864	Abq78864 Human	ion
4	2764.4	99.9	2966	6	ABZ33735	Abz33735 Human	TRI
5	2761.2	99.8	2782	6	ABN83428	Abn83428 Human	tra
6	2753	99.5	2769	6	ABQ78865	Abq78865 Human	ion
7	2751.4	99.5	2769	6	ABQ78866	Abq78866 Human	ion

```
2733.4
                   98.8
                           2781
                                      ABA04756
                                                                     Aba04756 Human nat
    9 2673.2
                   96.6
                           2685
                                      ABX56263
                                                                     Abx56263 Human NOV
                           2840 7
                                                                    Abx56262 Human NOV
   10 2657.6
                                      ABX56262
                   96.1
                                                                   Abx56261 Human NOV
                                  7
   11
        2367.2
                   85.6
                           2813
                                      ABX56261
                                                                   Acc00414 Human 690
   12
                           2534 7
        1786.4
                   64.6
                                      ACC00414
                                                                  Abn83429 Human tra
Abq78862 Human ion
Aah57377 Human hea
Adb59225 Toxicity-
Aal55587 Human 465
   13 1784.8
                   64.5 126512 6
                                      ABN83429
   14 1784.6
                   64.5
                           1863 6
                                      ABQ78862
   15 1326.4
                   48.0
                           2814 4
                                      AAH57377
   16 1294.4
                   46.8
                           3037 9
                                     ADB59225
                           4282 8
   17
          1277
                   46.2
                                      AAL55587
                                                                   Aac75706 Human ORF
   18
          1277
                  46.2
                          4291 3
                                      AAC75706
   19
        1227.8
                   44.4
                           4087 6
                                      AAD24450
                                                                   Aad24450 Bovine NC
   20
        1208.8
                   43.7
                           5438 5 ABV24305
                                                                   Abv24305 Human pro
   21
         897.4
                   32.4
                           1187 5 AAS90968
                                                                   Aas90968 DNA encod
   22
         897.4
                   32.4
                           1187 7
                                      ACD05939
                                                                    Acd05939 Novel hum
                                                               Aai19464 Probe #93
Aba64480 Human foe
Aai44657 Probe #13
Aba31619 Probe #10
Aak12937 Human bra
Abs38231 Human
   23
         787.2
                   28.5
                           1836 4
                                      AAI19464
         787.2
                           1836 4
   24
                   28.5
                                      ABA64480
   25
         787.2
                   28.5
                           1836
                                  4
                                      AAI44657
   26
         787.2
                  28.5
                           1836 4
                                      ABA31619
         787.2
                  28.5
                           1836 4
   27
                                      AAK12937
   28
         787.2
                   28.5
                           1836 4
                                      ABS38231
                                                                   Abs38231 Human liv
                           1836 6 ABS12734
                                                                    Abs12734 Human gen
   29
         787.2
                  28.5
   30
         593.2
                         4546 4 ABL09809
                                                               Ab109809 Drosophil
Aai85824 Human pol
Ab109808 Drosophil
Aai11264 Probe #11
Aba52926 Human foe
Aai32530 Probe #12
Aba42496 Human bre
Aba22706 Probe #11
Aak26636 Human bon
Aak01175 Human bra
Abs26227 Human liv
Aai01178 Probe #11
                                                                    Abl09809 Drosophil
                  21.4
           363
                           363 4
   31
                   13.1
                                      AAI85824
   32
            319
                   11.5 24221 4
                                      ABL09808
  33
         219.4
                    7.9
                            381
                                 4
                                      AAI11264
С
c 34
                    7.9
                            381 4 ABA52926
         219.4
c 35
         219.4
                    7.9
                            381 4 AAI32530
c 36
         219.4
                    7.9
                            381 4 ABA42496
c 37
         219.4
                    7.9
                            381 4
                                      ABA22706
  38
         219.4
                    7.9
                            381 4
                                      AAK26636
С
   39
         219.4
                    7.9
                            381
                                  4
                                      AAK01175
С
   40
         219.4
                    7.9
                            381
С
                                  4
                                      ABS26227
                                                                  Aai01178 Probe #11
   41
         219.4
                    7.9
                            381
                                  5
                                      AAI01178
С
         219.4
                    7.9
                            381
                                                                   Abs01229 Human gen
  42
                                  6
                                      ABS01229
                            458
                                                                   Aah98605 Rat EST-d
   43
         198.8
                    7.2
                                  4
                                      AAH98605
           198
                    7.2
                            325
                                  5 ABA11549
                                                                   Abal1549 Human ner
   44
   45
         186.4
                    6.7
                            491
                                     AAI10735
                                                                    Aai10735 Probe #66
                                  4
```

#### ALIGNMENTS

```
RESULT 1
AB078861
     ABQ78861 standard; cDNA; 2766 BP.
ID
XX
AC
     ABO78861;
XX
     09-OCT-2002 (first entry)
DT
XX
DE
     Human ion exchanger protein #1 cDNA.
XX
KW
     Human; ion exchanger protein; NHIEP; nootropic; cytostatic; gene therapy;
KW
     antiarthritic; virucide; chemotherapeutic; cancer; arthritis; antiviral;
     gene; ss; chromosome 14.
KW
XX
```

```
os
    Homo sapiens.
XX
FH
                   Location/Qualifiers
    Key
FT
    CDS
                   1. .2766
FT
                   /*tag= a
                   /product= "Ion exchanger protein 1"
FT
XX
PN
    WO200259316-A2.
XX
PD
    01-AUG-2002.
XX
PF
    22-JAN-2002; 2002WO-US001817.
XX
PR
    23-JAN-2001; 2001US-0263384P.
XX
    (LEXI-) LEXICON GENETICS INC.
PA
XX
    Friddle CJ, Hilbun E;
PΙ
XX
DR
    WPI; 2002-599791/64.
DR
    P-PSDB; ABB81913.
XX
PT
    Novel polynucleotides encoding human ion exchanger proteins that are
    structurally related to mammalian sodium-calcium exchanger proteins,
PT
PT
    useful for drug screening, diagnosis and in gene therapy of biological
PT
    disorders.
XX
PS
    Claim 1; Page 36-37; 42pp; English.
XX
CC
    The invention relates to a novel human ion exchanger protein (NHIEP),
CC
    that shares structural similarity with mammalian sodium-calcium exchanger
CC
    proteins, and potassium dependent versions of the same. The NHIEP of the
CC
    invention has nootropic, cytostatic, antiarthritic, and virucide
CC
    activity. The polynucleotide may have a use in gene therapy. NHIEPs can
CC
    be targeted by drugs, oligos, antibodies etc., in order to treat disease
CC
    or to therapeutically augment the efficacy of chemotherapeutic agents
    used in the treatment of cancer, arthritis, or as antiviral agents. The
CC
CC
    sequence encodes a NHIEP of the invention
XX
SQ
    Sequence 2766 BP; 655 A; 678 C; 760 G; 673 T; 0 U; 0 Other;
                        100.0%; Score 2766; DB 6; Length 2766;
 Query Match
 Best Local Similarity
                       100.0%; Pred. No. 0;
 Matches 2766: Conservative
                              0: Mismatches
                                               0:
                                                 Indels
                                                            0:
                                                               Gaps
                                                                       0;
           1 ATGGCGTGGTTAAGGTTGCAGCCTCTCACCTCTGCCTTCCTCCATTTTGGGCTGGTTACC 60
Qу
             1 ATGGCGTGGTTAAGGTTGCAGCCTCTCACCTCTGCCTTCCTCCATTTTGGGCTGGTTACC 60
Db
          61 TTTGTGCTCTTCCTGAATGGTCTTCGAGCAGAGGCTGGTGGCTCAGGGGACGTGCCAAGC 120
Qу
             61 TTTGTGCTCTTCCTGAATGGTCTTCGAGCAGAGGCTGGTGGCTCAGGGGACGTGCCAAGC 120
Db
         121 ACAGGGCAGAACAATGAGTCCTGTTCAGGGTCATCGGACTGCAAGGAGGGTGTCATCCTG 180
Qу
             121 ACAGGGCAGAACAATGAGTCCTGTTCAGGGTCATCGGACTGCAAGGAGGGTGTCATCCTG 180
Db
```

QУ	181	CCAATCTGGTACCCGGAGACCCTTCCCTTGGGGACAAGATTGCCAGGGTCATTGTCTAT	240
Db	181		240
Qу	241	TTTGTGGCCCTGATATACATGTTCCTTGGGGTGTCCATCATTGCTGACCGCTTCATGGCA	300
Db	241	TTTGTGGCCCTGATATACATGTTCCTTGGGGTGTCCATCATTGCTGACCGCTTCATGGCA	300
Qу	301	TCTATTGAAGTCATCACCTCTCAAGAGAGGGGAGGTGACAATTAAGAAACCCAATGGAGAA	360
Db	301	TCTATTGAAGTCATCACCTCTCAAGAGAGGGAGGTGACAATTAAGAAACCCAATGGAGAA	360
Qу	361	ACCAGCACACCACTATTCGGGTCTGGAATGAAACTGTCTCCAACCTGACCCTTATGGCC	420
Db	361	ACCAGCACACCACTATTCGGGTCTGGAATGAAACTGTCTCCAACCTGACCCTTATGGCC	420
Qу	421	CTGGGTTCCTCTGCTCCTGAGATACTCCTCTCTTTAATTGAGGTGTGTGGTCATGGGTTC	480
Db	421	CTGGGTTCCTCTGAGATACTCCTCTTTTAATTGAGGTGTGTGGTCATGGGTTC	480
Qу	481	ATTGCTGGTGATCTGGGACCTTCTACCATTGTAGGGAGTGCAGCCTTCAACATGTTCATC	540
Db	481	ATTGCTGGTGATCTGGGACCTTCTACCATTGTAGGGAGTGCAGCCTTCAACATGTTCATC	540
Qy	541	ATCATTGGCATCTGTGTCTACGTGATCCCAGACGGAGAGACTCGCAAGATCAAGCATCTA	600
Db	541	ATCATTGGCATCTGTGTCTACGTGATCCCAGACGGAGAGACTCGCAAGATCAAGCATCTA	600
Qy	601	CGAGTCTTCTTCATCACCGCTGCTTGGAGTATCTTTGCCTACATCTGGCTCTATATGATT	660
Db	601	CGAGTCTTCTTCATCACCGCTGCTTGGAGTATCTTTGCCTACATCTGGCTCTATATGATT	660
Qу	661	CTGGCAGTCTTCTCCCCTGGTGTGGTCCAGGTTTGGGAAGGCCTCCTCACTCTTCTTC	720
Db	661	CTGGCAGTCTTCTCCCCTGGTGTGGTCCAGGTTTGGGAAGGCCTCCTCACTCTTCTTC	720
Qy	721	TTTCCAGTGTGTCCTTCTGGCCTGGGTGGCAGATAAACGACTGCTCTTCTACAAATAC	780
Db	721	TTTCCAGTGTGTCCTTCTGGCCTGGGTGGCAGATAAACGACTGCTCTTCTACAAATAC	780
Qу	781	ATGCACAAAAGTACCGCACAGACAAACACCGAGGAATTATCATAGAGACAGAGGGTGAC	840
Db	781	ATGCACAAAAGTACCGCACAGACAAACACCGAGGAATTATCATAGAGACAGAGGGTGAC	840
Qу	841	CACCCTAAGGGCATTGAGATGGGAAAATGATGAATTCCCATTTTCTAGATGGGAAC	900
Db	841	CACCCTAAGGGCATTGAGATGGGAAAATGATGAATTCCCATTTTCTAGATGGGAAC	900
Qу	901	CTGGTGCCCCTGGAAGGAAGGAAGTGGATGAGTCCCGCAGAGAGATGATCCGGATTCTC	960
Db	901	CTGGTGCCCCTGGAAGGAAGGAAGTGATCCCGCAGAGAGATGATCCCGGATTCTC	960
Qy	961	AAGGATCTGAAGCAAAAACACCCAGAGAAGGACTTAGATCAGCTGGTGGAGATGGCCAAT	1020
Db	961		1020
Ov	1021	TACTATGCTCTTTCCCACCAACAGAAGAGCCGCCCTTCTACCGTATCCAAGCCACTCGT	1080

D.	1001		1000
Db		TACTATGCTCTTTCCCACCAACAGAAGAGCCGCGCCTTCTACCGTATCCAAGCCACTCGT	
Qу	1081	ATGATGACTGGTGCAGGCAATATCCTGAAGAACATGCAGCAGAACAAGCCAAGAAGGCC	1140
Db	1081	${\tt ATGATGACTGGTGCAGGCAATATCCTGAAGAAACATGCAGCAGAACAAGCCAAGAAGGCC}$	1140
Qу	1141	TCCAGCATGAGCGAGGTGCACACCGATGAGCCTGAGGACTTTATTTCCAAGGTCTTCTTT	1200
Db	1141	TCCAGCATGAGCGAGGTGCACACCGATGAGCCTGAGGACTTTATTTCCAAGGTCTTCTTT	1200
Qу	1201	GACCCATGTTCTTACCAGTGCCTGGAGAACTGTGGGGGCTGTACTCCTGACAGTGGTGAGG	1260
Db	1201		1260
Qу	1261	AAAGGGGGAGACATGTCAAAGACCATGTATGTGGACTACAAAACAGAGGATGGTTCTGCC	1320
Db	1261		1320
Qy	1321	AATGCAGGGGCTGACTATGAGTTCACAGAGGGCACGGTGGTTCTGAAGCCAGGAGAGACC	1380
Db	1321		1380
Qу	1381	CAGAAGGAGTTCTCCGTGGGCATAATTGATGACGACATTTTTGAGGAGGATGAACACTTC	1440
Db	1381		1440
Qу	1441	TTTGTAAGGTTGAGCAATGTCCGCATAGAGGAGGAGCAGCCAGAGGAGGAGGGATGCCTCCA	1500
Db	1441	TTTGTAAGGTTGAGCAATGTCCGCATAGAGGAGGAGCAGCCAGAGGAGGAGGAGCCTCCA	1500
Qу	1501	GCAATATTCAACAGTCTTCCCTTGCCTCGGGCTGTCCTAGCCTCCCCTTGTGTGGCCACA	1560
Db	1501		1560
Qу	1561	GTTACCATCTTGGATGATGACCATGCAGGCATCTTCACTTTTGAATGTGATACTATTCAT	1620
Db	1561		1620
Qу	1621	GTCAGTGAGAGTATTGGTGTTATGGAGGTCAAGGTTCTGCGGACATCAGGTGCCCGGGGT	1680
Db	1621		1680
Qу	1681	ACAGTCATCGTCCCCTTTAGGACAGTAGAAGGGACAGCCAAGGGTGGCGGTGAGGACTTT	1740
Db	1681		1740
Qу	1741	GAAGACACATATGGGGAGTTGGAATTCAAGAATGATGAAAACTGTGAAAAACCATAAGGGTT	1800
Db	1741		1800
Qу	1801	AAAATAGTAGATGAGGAGGAATACGAAAGGCAAGAGAATTTCTTCATTGCCCTTGGTGAA	1860
Db	1801		1860
Qу	1861	CCGAAATGGATGGAACGTGGAATATCAGATGTGACAGACA	1920

Db	1861	CCGAAATGGATGGAACGTGGAATATCAGATGTGACAGACA	1920
Qy	1921	GAGGAGGCCAAGAGGATAGCAGAGATGGGAAAGCCAGTATTGGGTGAACACCCCAAACTA	1980
Db	1921	GAGGAGGCCAAGAGATAGCAGAGATGGGAAAGCCAGTATTGGGTGAACACCCCAAACTA	1980
Qу	1981	GAAGTCATCATTGAAGAGTCCTATGAGTTCAAGACTACGGTGGACAAACTGATCAAGAAG	2040
Db	1981	GAAGTCATCATTGAAGAGTCCTATGAGTTCAAGACTACGGTGGACAAACTGATCAAGAAG	2040
Qу	2041	ACAAACCTGGCCTTGGTTGTGGGGACCCATTCCTGGAGGGACCAGTTCATGGAGGCCATC	2100
Db	2041	ACAAACCTGGCCTTGGTTGTGGGGACCCATTCCTGGAGGGACCAGTTCATGGAGGCCATC	2100
Qу	2101	ACCGTCAGTGCAGCAGGGGATGAGGATGAATCCGGGGAGGAGGGCTGCCCTCC	2160
Db	2101	ACCGTCAGTGCAGCAGGGATGAGGATGAGTCCGGGGAGGAGAGGCTGCCCTCC	2160
Qу	2161	TGCTTTGACTACGTCATGCACTTCCTGACTGTCTTCTGGAAGGTGCTGTTTGCCTGTGTG	2220
Db	2161	TGCTTTGACTACGTCATGCACTTCCTGACTGTCTTCTGGAAGGTGCTGTTTGCCTGTGTG	2220
Qу	2221	CCCCCACAGAGTACTGCCACGGCTGGGCCTGCTTCGCCGTCTCCATCCTCATCATTGGC	2280
Db	2221	CCCCCACAGAGTACTGCCACGGCTGGGCCTGCTTCGCCGTCTCCATCCTCATCATTGGC	2280
Qу	2281	ATGCTCACCGCCATCATTGGGGACCTGGCCTCGCACTTCGGCTGCACCATTGGTCTCAAA	2340
Db	2281	ATGCTCACCGCCATCATTGGGGACCTGGCCTCGCACTTCGGCTGCACCATTGGTCTCAAA	2340
QУ	2341	GATTCAGTCACAGCTGTTGTTTTCGTGGCATTTGGCACCTCTGTCCCAGATACGTTTGCC	2400
Db	2341	GATTCAGTCACAGCTGTTGTTTTCGTGGCATTTGGCACCTCTGTCCCAGATACGTTTGCC	2400
Qy	2401	AGCAAAGCTGCCCCCCAGGATGTATATGCAGACGCCTCCATTGGCAACGTGACGGGC	2460
Db	2401	AGCAAAGCTGCCCCCCAGGATGTATATGCAGACGCCTCCATTGGCAACGTGACGGGC	2460
Qу	2461	AGCAACGCCGTCAATGTCTTCCTGGGCATCGGCCTGGCCTGGTCCGTGGCCGCCATCTAC	2520
Db	2461	AGCAACGCCGTCAATGTCTTCCTGGGCATCGGCCTGGCCTGGTCCGTGGCCGCCATCTAC	2520
Qy	2521	TGGGCTCTGCAGGGACAGGAGTTCCACGTGTCGGCCGGCACACTGGCCTTCTCCGTCACC	2580
Db	2521	TGGGCTCTGCAGGACAGGAGTTCCACGTGTCGGCCGGCACACTGGCCTTCTCCGTCACC	2580
Qу	2581	CTCTTCACCATCTTTGCATTTGTCTGCATCAGCGTGCTCTTGTACCGAAGGCGGCCGCAC	2640
Db	2581	CTCTTCACCATCTTTGCATTTGTCTGCATCAGCGTGCTCTTGTACCGAAGGCGGCCGCAC	2640
Qу	2641	CTGGGAGGGGAGCTTGGTGGCCCCGTGGCTGCAAGCTCGCCACAACATGGCTCTTTGTG	2700
Db	2641	CTGGGAGGGAGCTTGGTGGCCCCCGTGGCTGCAAGCTCGCCACAACATGGCTCTTTGTG	2700
Qу	2701	AGCCTGTGGCTCCTCTACATACTCTTTGCCACACTAGAGGCCTATTGCTACATCAAGGGG	2760
Db	2701	AGCCTGTGGCTCCTCTACATACTCTTTGCCACACTAGAGGCCTATTGCTACATCAAGGGG	2760

```
Qу
         2761 TTCTAA 2766
              11111
         2761 TTCTAA 2766
Db
RESULT 2
ABO78863
    ABQ78863 standard; cDNA; 3812 BP.
XX
AC
    ABQ78863;
XX
DT
     09-OCT-2002
                  (first entry)
XX
DE
    Human ion exchanger protein cDNA #3.
XX
KW
    Human; ion exchanger protein; NHIEP; nootropic; cytostatic; gene therapy;
KW
     antiarthritic; virucide; chemotherapeutic; cancer; arthritis; antiviral;
KW
     gene; ss; chromosome 14.
XX
OS
    Homo sapiens.
XX
PN
    W0200259316-A2.
XX
PD
     01-AUG-2002.
XX
PF
     22-JAN-2002; 2002WO-US001817.
XX
PR
     23-JAN-2001; 2001US-0263384P.
XX
PΑ
     (LEXI-) LEXICON GENETICS INC.
XX
ΡI
     Friddle CJ, Hilbun E;
XX
DR
    WPI; 2002-599791/64.
XX
PT
    Novel polynucleotides encoding human ion exchanger proteins that are
PT
     structurally related to mammalian sodium-calcium exchanger proteins,
PТ
     useful for drug screening, diagnosis and in gene therapy of biological
PT
    disorders.
XX
PS
    Disclosure; Page 41-42; 42pp; English.
XX
CC
     The invention relates to a novel human ion exchanger protein (NHIEP),
CC
     that shares structural similarity with mammalian sodium-calcium exchanger
CC
    proteins, and potassium dependent versions of the same. The NHIEP of the
CC
     invention has nootropic, cytostatic, antiarthritic, and virucide
CC
     activity. The polynucleotide may have a use in gene therapy. NHIEPs can
CC
    be targeted by drugs, oligos, antibodies etc., in order to treat disease
CC
     or to therapeutically augment the efficacy of chemotherapeutic agents
CC
     used in the treatment of cancer, arthritis, or as antiviral agents. The
CC
     sequence encodes a NHIEP of the invention, with regions of flanking
CC
     sequence
XX
SQ
     Sequence 3812 BP; 860 A; 1059 C; 1041 G; 852 T; 0 U; 0 Other;
```

100.0%; Score 2766; DB 6; Length 3812;

Query Match

100.0%; Pred. No. 0; Best Local Similarity Matches 2766; Conservative 0; Mismatches 0; 0; Indels Gaps 0; Qy 1 ATGGCGTGGTTAAGGTTGCAGCCTCTCACCTCTGCCTTCCTCCATTTTGGGCTGGTTACC 60 618 ATGGCGTGGTTAAGGTTGCAGCCTCTCACCTCTGCCTTCCTCCATTTTGGGCTGGTTACC 677 Db 61 TTTGTGCTCTTCCTGAATGGTCTTCGAGCAGAGGCTGGTGGCTCAGGGGACGTGCCAAGC 120 Qy 678 TTTGTGCTCTTCCTGAATGGTCTTCGAGCAGAGGCTGGTGGCTCAGGGGGACGTGCCAAGC 737 Db 121 ACAGGGCAGAACAATGAGTCCTGTTCAGGGTCATCGGACTGCAAGGAGGGTGTCATCCTG 180 Qу 738 ACAGGGCAGAACAATGAGTCCTGTTCAGGGTCATCGGACTGCAAGGAGGGTGTCATCCTG 797 Db 181 CCAATCTGGTACCCGGAGAACCCTTCCCTTGGGGACAAGATTGCCAGGGTCATTGTCTAT 240 Qy 798 CCAATCTGGTACCCGGAGAACCCTTCCCTTGGGGACAAGATTGCCAGGGTCATTGTCTAT 857 Db 241 TTTGTGGCCCTGATATACATGTTCCTTGGGGTGTCCATCATTGCTGACCGCTTCATGGCA 300 Qy 858 TTTGTGGCCCTGATATACATGTTCCTTGGGGTGTCCATCATTGCTGACCGCTTCATGGCA 917 Db 301 TCTATTGAAGTCATCACCTCTCAAGAGAGGGGGGGTGACAATTAAGAAACCCAATGGAGAA 360 Qy 918 TCTATTGAAGTCATCACCTCTCAAGAGAGGGGGGGGTGACAATTAAGAAACCCAATGGAGAA 977 Db 361 ACCAGCACAACCACTATTCGGGTCTGGAATGAAACTGTCTCCAACCTGACCCTTATGGCC 420 Qy 978 ACCAGCACAACCACTATTCGGGTCTGGAATGAAACTGTCTCCAACCTGACCCTTATGGCC 1037 Db Qу 421 CTGGGTTCCTCTGCTCCTGAGATACTCCTCTCTTTAATTGAGGTGTGTGGTCATGGGTTC 480 1038 CTGGGTTCCTCTGCTCCTGAGATACTCCTCTCTTTAATTGAGGTGTGTGGTCATGGGTTC 1097 Db 481 ATTGCTGGTGATCTGGGACCTTCTACCATTGTAGGGAGTGCAGCCTTCAACATGTTCATC 540 Qу 1098 ATTGCTGGTGATCTGGGACCTTCTACCATTGTAGGGAGTGCAGCCTTCAACATGTTCATC 1157 Db 541 ATCATTGGCATCTGTGTCTACGTGATCCCAGACGGAGAGACTCGCAAGATCAAGCATCTA 600 Qу 1158 ATCATTGGCATCTGTGTCTACGTGATCCCAGACGGAGAGCTCGCAAGATCAAGCATCTA 1217 Db 601 CGAGTCTTCTTCATCACCGCTGCTTGGAGTATCTTTGCCTACATCTGGCTCTATATGATT 660 Qу 1218 CGAGTCTTCTTCATCACCGCTGCTTGGAGTATCTTTGCCTACATCTGGCTCTATATGATT 1277 Db 661 CTGGCAGTCTTCTCCCCTGGTGTGGTCCAGGTTTGGGAAGGCCTCCTCACTCTCTTC 720 Qу 1278 CTGGCAGTCTTCTCCCCTGGTGTGGTCCAGGTTTGGGAAGGCCTCCTCACTCTTCTTC 1337 Db 721 TTTCCAGTGTGTCCTTCTGGCCTGGGTGGCAGATAAACGACTGCTCTTCTACAAATAC 780 QУ 1338 TTTCCAGTGTGTCCTTCTGGCCTGGGTGGCAGATAAACGACTGCTCTTCTACAAATAC 1397 Db 781 ATGCACAAAAAGTACCGCACAGACAAACACCGAGGAATTATCATAGAGACAGAGGGTGAC 840 Qy

Db	1398	ATGCACAAAAAGTACCGCACAGACAAACACCGAGGAATTATCATAGAGACAGAGGGTGAC	1457
Qу	841	CACCCTAAGGGCATTGAGATGGGAAAATGATGAATTCCCATTTTCTAGATGGGAAC	900
Db	1458	CACCCTAAGGGCATTGAGATGGGAAAATGATGAATTCCCATTTTCTAGATGGGAAC	1517
Qу	901	CTGGTGCCCCTGGAAGGAAGGAAGTGGATGAGTCCCGCAGAGAGATGATCCGGATTCTC	960
Db	1518	CTGGTGCCCCTGGAAGGGAAGGAAGTGATCCCGCAGAGAGATGATCCGGATTCTC	1577
Qу	961	AAGGATCTGAAGCAAAAACACCCAGAGAAGGACTTAGATCAGCTGGTGGAGATGGCCAAT	1020
Db	1578	AAGGATCTGAAGCAAAAACACCCAGAGAAGGACTTAGATCAGCTGGTGGAGATGGCCAAT	1637
Qу	1021	TACTATGCTCTTTCCCACCAACAGAAGAGCCGCGCCTTCTACCGTATCCAAGCCACTCGT	1080
Db	1638	TACTATGCTCTTTCCCACCAACAGAAGAGCCGCGCCTTCTACCGTATCCAAGCCACTCGT	1697
Qy	1081	ATGATGACTGGTGCAGGCAATATCCTGAAGAAACATGCAGCAGAACAAGCCAAGAAGGCC	1140
Db	1698	ATGATGACTGGTGCAGGCAATATCCTGAAGAAACATGCAGCAGAACAAGCCAAGAAGGCC	1757
Qу	1141	TCCAGCATGAGCGAGGTGCACACCGATGAGCCTGAGGACTTTATTTCCAAGGTCTTCTTT	1200
Db	1758	TCCAGCATGAGCGAGGTGCACACCGATGAGCCTGAGGACTTTATTTCCAAGGTCTTCTTT	1817
Qу	1201	GACCCATGTTCTTACCAGTGCCTGGAGAACTGTGGGGGCTGTACTCCTGACAGTGGTGAGG	1260
Db	1818	GACCCATGTTCTTACCAGTGCCTGGAGAACTGTGGGGGCTGTACTCCTGACAGTGGTGAGG	1877
Qу	1261	AAAGGGGGAGACATGTCAAAGACCATGTATGTGGACTACAAAACAGAGGATGGTTCTGCC	1320
Db	1878	AAAGGGGGAGACATGTCAAAGACCATGTATGTGGACTACAAAACAGAGGATGGTTCTGCC	1937
Qу	1321	AATGCAGGGGCTGACTATGAGTTCACAGAGGGCACGGTGGTTCTGAAGCCAGGAGAGACC	1380
Db	1938	AATGCAGGGGCTGACTATGAGTTCACAGAGGGCACGGTGGTTCTGAAGCCAGGAGAGACC	1997
Qу	1381	CAGAAGGAGTTCTCCGTGGGCATAATTGATGACGACATTTTTGAGGAGGATGAACACTTC	1440
Db	1998	CAGAAGGAGTTCTCCGTGGGCATAATTGATGACGACATTTTTTGAGGAGGATGAACACTTC	2057
Qy	1441	TTTGTAAGGTTGAGCAATGTCCGCATAGAGGAGGAGCCAGAGGAGGGGGATGCCTCCA	1500
Db	2058	${\tt TTTGTAAGGTTGAGCAATGTCCGCATAGAGGAGGAGGAGGAGGAGGAGGGAG$	2117
Qy	1501	GCAATATTCAACAGTCTTCCCTTGCCTCGGGCTGTCCTAGCCTCCCCTTGTGTGGCCACA	1560
Db	2118	GCAATATTCAACAGTCTTCCCTTGCCTCGGGCTGTCCTAGCCTCCCCTTGTGTGGCCACA	2177
Qy	1561	GTTACCATCTTGGATGACCATGCAGGCATCTTCACTTTTGAATGTGATACTATTCAT	1620
Db	2178	GTTACCATCTTGGATGATGACCATGCAGGCATCTTCACTTTTGAATGTGATACTATTCAT	2237
Qy	1621	GTCAGTGAGAGTATTGGTGTTATGGAGGTCAAGGTTCTGCGGACATCAGGTGCCCGGGGT	1680
Db	2238	GTCAGTGAGAGTATTGGTGTTATGGAGGTCAAGGTTCTGCGGACATCAGGTGCCCGGGGT	2297

Qу	1681	ACAGTCATCGTCCCCTTTAGGACAGTAGAAGGGACAGCCAAGGGTGGCGGTGAGGACTTT	1740
Db	2298	ACAGTCATCGTCCCCTTTAGGACAGTAGAAGGGACAGCCAAGGGTGGCGGTGAGGACTTT	2357
Qy	1741	GAAGACACATATGGGGAGTTGGAATTCAAGAATGATGAAAACTGTGAAAACCATAAGGGTT	1800
Db	2358	GAAGACACATATGGGGAGTTGGAATTCAAGAATGATGAAAACTGTGAAAACCATAAGGGTT	2417
Qу	1801	AAAATAGTAGATGAGGAGGAATACGAAAGGCAAGAGAATTTCTTCATTGCCCTTGGTGAA	1860
Db	2418	AAAATAGTAGATGAGGAATACGAAAGGCAAGAGAATTTCTTCATTGCCCTTGGTGAA	2477
Qу	1861	CCGAAATGGATGGAACGTGGAATATCAGATGTGACAGACA	1920
Db	2478	CCGAAATGGATGGAACGTGGAATATCAGATGTGACAGACA	2537
Qу	1921	GAGGAGGCCAAGAGGATAGCAGAGATGGGAAAGCCAGTATTGGGTGAACACCCCAAACTA	1980
Db	2538	GAGGAGGCCAAGAGATAGCAGAGATGGGAAAGCCAGTATTGGGTGAACACCCCAAACTA	2597
Qу	1981	GAAGTCATCATTGAAGAGTCCTATGAGTTCAAGACTACGGTGGACAAACTGATCAAGAAG	2040
Db	2598	GAAGTCATCATTGAAGAGTCCTATGAGTTCAAGACTACGGTGGACAAACTGATCAAGAAG	2657
Qу	2041	ACAAACCTGGCCTTGGTTGTGGGGACCCATTCCTGGAGGGACCAGTTCATGGAGGCCATC	2100
Db	2658	ACAAACCTGGCCTTGGTTGTGGGGACCCATTCCTGGAGGGACCAGTTCATGGAGGCCATC	2717
Qу	2101	ACCGTCAGTGCAGCAGGGGATGAGGATGAGTCCGGGGAGGAGGAGGCTGCCCTCC	2160
Db	2718	ACCGTCAGTGCAGCAGGGATGAGGATGAGGATGAATCCGGGGAGGAGAGGCTGCCCTCC	2777
Qy	2161	TGCTTTGACTACGTCATGCACTTCCTGACTGTCTTCTGGAAGGTGCTGTTTGCCTGTGTG	2220
Db	2778	TGCTTTGACTACGTCATGCACTTCCTGACTGTCTTCTGGAAGGTGCTGTTTGCCTGTGTG	2837
Qу	2221	CCCCCACAGAGTACTGCCACGGCTGGGCCTGCTTCGCCGTCTCCATCCTCATCATTGGC	2280
Db	2838	CCCCCACAGAGTACTGCCACGGCTGGGCCTGCTTCGCCGTCTCCATCCTCATCATTGGC	2897
Qу	2281	ATGCTCACCGCCATCATTGGGGACCTGGCCTCGCACTTCGGCTGCACCATTGGTCTCAAA	2340
Db	2898	ATGCTCACCGCCATCATTGGGGACCTGGCCTCGCACTTCGGCTGCACCATTGGTCTCAAA	2957
Qу	2341	GATTCAGTCACAGCTGTTGTTTTCGTGGCATTTGGCACCTCTGTCCCAGATACGTTTGCC	2400
Db	2958	GATTCAGTCACAGCTGTTGTTTTCGTGGCATTTGGCACCTCTGTCCCAGATACGTTTGCC	3017
Qy	2401	AGCAAAGCTGCTGCCCTCCAGGATGTATATGCAGACGCCTCCATTGGCAACGTGACGGGC	2460
Db	3018		3077
Qу	2461	AGCAACGCCGTCAATGTCTTCCTGGGCATCGGCCTGGCCTGGTCCGTGGCCGCCATCTAC	2520
Db	3078	AGCAACGCCGTCAATGTCTTCCTGGGCATCGGCCTGGCCGTGGCCGCCATCTAC	3137

```
2521 TGGGCTCTGCAGGGACAGGAGTTCCACGTGTCGGCCGGCACACTGGCCTTCTCCGTCACC 2580
Qу
            3138 TGGGCTCTGCAGGGACAGGAGTTCCACGTGTCGGCCGGCACACTGGCCTTCTCCGTCACC 3197
Db
        2581 CTCTTCACCATCTTTGCATTTGTCTGCATCAGCGTGCTCTTGTACCGAAGGCGGCCGCAC 2640
Qу
            Db
        3198 CTCTTCACCATCTTTGCATTTGTCTGCATCAGCGTGCTCTTGTACCGAAGGCGGCCGCAC 3257
        2641 CTGGGAGGGGAGCTTGGTGGCCCCCGTGGCTGCAAGCTCGCCACAACATGGCTCTTTGTG 2700
Qу
            Db
        3258 CTGGGAGGGGAGCTTGGTGGCCCCCGTGGCTGCAAGCTCGCCACAACATGGCTCTTTGTG 3317
        2701 AGCCTGTGGCTCCTCTACATACTCTTTGCCACACTAGAGGCCTATTGCTACATCAAGGGG 2760
Qу
            3318 AGCCTGTGGCTCCTCTACATACTCTTTGCCACACTAGAGGCCTATTGCTACATCAAGGGG 3377
Db
        2761 TTCTAA 2766
Qy
            3378 TTCTAA 3383
Db
RESULT 3
ABO78864
    ABQ78864 standard; cDNA; 2766 BP.
XX
AC
    ABQ78864;
XX
    09-OCT-2002 (first entry)
DT
XX
DE
    Human ion exchanger protein #1 cDNA A/G mutant.
XX
KW
    Human; ion exchanger protein; NHIEP; nootropic; cytostatic; gene therapy;
KW
    antiarthritic; virucide; chemotherapeutic; cancer; arthritis; antiviral;
KW
    gene; ss; mutant.
XX
os
    Homo sapiens.
    Synthetic.
OS
XX
FH
                  Location/Qualifiers
    Key
FT
    mutation
                  replace (1889, A)
                  /*tag= a
FT
XX
PN
    W0200259316-A2.
XX
PD
    01-AUG-2002.
XX
    22-JAN-2002; 2002WO-US001817.
PF
XX
PR
    23-JAN-2001; 2001US-0263384P.
XX
PA
    (LEXI-) LEXICON GENETICS INC.
XX
ΡI
    Friddle CJ, Hilbun E;
XX
DR
    WPI; 2002-599791/64.
XX
    Novel polynucleotides encoding human ion exchanger proteins that are
PT
```

structurally related to mammalian sodium-calcium exchanger proteins, useful for drug screening, diagnosis and in gene therapy of biological PT РΤ disorders. XX Disclosure; Page; 42pp; English. PS XX CC The invention relates to a novel human ion exchanger protein (NHIEP), CC that shares structural similarity with mammalian sodium-calcium exchanger CC proteins, and potassium dependent versions of the same. The NHIEP of the invention has nootropic, cytostatic, antiarthritic, and virucide CC CC activity. The polynucleotide may have a use in gene therapy. NHIEPs can CC be targeted by drugs, oligos, antibodies etc., in order to treat disease CC or to therapeutically augment the efficacy of chemotherapeutic agents CC used in the treatment of cancer, arthritis, or as antiviral agents. The CC sequence represents a mutant form of a NHIEP of the invention. Note: The CC present sequence is not shown in the specification but is derived from CC the human NHIEP sequence shown as SEQ ID 1 (ABQ78861) XX Sequence 2766 BP; 654 A; 678 C; 761 G; 673 T; 0 U; 0 Other; SO 99.9%; Score 2764.4; DB 6; Length 2766; Best Local Similarity 100.0%; Pred. No. 0; Matches 2765; Conservative 0; Mismatches 1; Indels 0; Gaps 0; 1 ATGGCGTGGTTAAGGTTGCAGCCTCTCACCTCTGCCTTCCTCCATTTTGGGCTGGTTACC 60 Qу 1 ATGGCGTGGTTAAGGTTGCAGCCTCTCACCTCTGCCTTCCTCCATTTTGGGCTGGTTACC 60 Db 61 TTTGTGCTCTTCCTGAATGGTCTTCGAGCAGAGGCTGGTGGCTCAGGGGACGTGCCAAGC 120 Qу 61 TTTGTGCTCTTCCTGAATGGTCTTCGAGCAGAGGCTGGTGGCTCAGGGGACGTGCCAAGC 120 Db 121 ACAGGGCAGAACAATGAGTCCTGTTCAGGGTCATCGGACTGCAAGGAGGGTGTCATCCTG 180 Qу 121 ACAGGGCAGAACAATGAGTCCTGTTCAGGGTCATCGGACTGCAAGGAGGGTGTCATCCTG 180 Db 181 CCAATCTGGTACCCGGAGAACCCTTCCCTTGGGGACAAGATTGCCAGGGTCATTGTCTAT 240 Qy 181 CCAATCTGGTACCCGGAGAACCCTTCCCTTGGGGACAAGATTGCCAGGGTCATTGTCTAT 240 Db 241 TTTGTGGCCCTGATATACATGTTCCTTGGGGTGTCCATCATTGCTGACCGCTTCATGGCA 300 Qу 241 TTTGTGGCCCTGATATACATGTTCCTTGGGGTGTCCATCATTGCTGACCGCTTCATGGCA 300 Db 301 TCTATTGAAGTCATCACCTCTCAAGAGAGGGGGGGGGGACAATTAAGAAACCCAATGGAGAA 360 Qу 301 TCTATTGAAGTCATCACCTCTCAAGAGAGGGAGGTGACAATTAAGAAACCCAATGGAGAA 360 Db 361 ACCAGCACAACCACTATTCGGGTCTGGAATGAAACTGTCTCCAACCTGACCCTTATGGCC 420 Qy 361 ACCAGCACACCACTATTCGGGTCTGGAATGAAACTGTCTCCAACCTGACCCTTATGGCC 420 Db 421 CTGGGTTCCTCTGCTCCTGAGATACTCCTCTCTTTAATTGAGGTGTGTGGTCATGGGTTC 480 Qу 421 CTGGGTTCCTCTGCTCCTGAGATACTCCTCTCTTTAATTGAGGTGTGTGGTCATGGGTTC 480 Db

481 ATTGCTGGTGATCTGGGACCTTCTACCATTGTAGGGAGTGCAGCCTTCAACATGTTCATC 540

Qу

Db	481	ATTGCTGGTGATCTGGGACCTTCTACCATTGTAGGGAGTGCAGCCTTCAACATGTTCATC	540
Qу	541	ATCATTGGCATCTGTGTCTACGTGATCCCAGACGGAGAGACTCGCAAGATCAAGCATCTA	600
Db	541	ATCATTGGCATCTGTGTCTACGTGATCCCAGACGGAGAGACTCGCAAGATCAAGCATCTA	600
. Оу	601	CGAGTCTTCTTCATCACCGCTGCTTGGAGTATCTTTGCCTACATCTGGCTCTATATGATT	660
Db	601	CGAGTCTTCTTCATCACCGCTGCTTGGAGTATCTTTGCCTACATCTGGCTCTATATGATT	660
Qу	661	CTGGCAGTCTTCTCCCCTGGTGTGGTCCAGGTTTGGGAAGGCCTCCTCACTCTTCTTC	720
Db	661	CTGGCAGTCTTCTCCCCTGGTGTGGTCCAGGTTTGGGAAGGCCTCCTCACTCTTCTTC	720
Qу	721	TTTCCAGTGTGTCCTTCTGGCCTGGGTGGCAGATAAACGACTGCTCTTCTACAAATAC	780
Db	721	TTTCCAGTGTGTCCTTCTGGCCTGGGTGGCAGATAAACGACTGCTCTTCTACAAATAC	780
Qу	781	ATGCACAAAAAGTACCGCACAGACAACACCGAGGAATTATCATAGAGACAGAGGGTGAC	840
Db	781	ATGCACAAAAGTACCGCACAGACAAACACCGAGGAATTATCATAGAGACAGAGGGTGAC	840
Qу	841	CACCCTAAGGGCATTGAGATGGGAAAATGATGAATTCCCATTTTCTAGATGGGAAC	900
Db	841	CACCCTAAGGGCATTGAGATGGGAAAATGATGAATTCCCATTTTCTAGATGGGAAC	900
Qу	901	CTGGTGCCCCTGGAAGGGAAGGAAGTGGATGAGTCCCGCAGAGAGATGATCCGGATTCTC	960
Db	901	CTGGTGCCCCTGGAAGGAAGGAAGTGGATGAGTCCCGCAGAGAGATGATCCGGATTCTC	960
Qу	961	AAGGATCTGAAGCAAAAACACCCAGAGAAGGACTTAGATCAGCTGGTGGAGATGGCCAAT	1020
Db	961	AAGGATCTGAAGCAAAAACACCCAGAGAAGGACTTAGATCAGCTGGTGGAGATGGCCAAT	1020
Qу	1021	TACTATGCTCTTTCCCACCAACAGAAGAGCCGCGCCTTCTACCGTATCCAAGCCACTCGT	1080
Db	1021	TACTATGCTCTTTCCCACCAACAGAAGAGCCGCCCTTCTACCGTATCCAAGCCACTCGT	1080
Qу	1081	ATGATGACTGGTGCAGGCAATATCCTGAAGAAACATGCAGCAGAACAAGCCAAGAAGGCC	1140
Db	1081	ATGATGACTGGTGCAGGCAATATCCTGAAGAACATGCAGCAGAACAAGCCAAGAAGGCC	1140
Qу	1141	TCCAGCATGAGCGAGGTGCACACCGATGAGCCTGAGGACTTTATTTCCAAGGTCTTCTTT	1200
Db	1141	TCCAGCATGAGCGAGGTGCACCCGATGAGCCTGAGGACTTTATTTCCAAGGTCTTCTTT	1200
QУ	1201	GACCCATGTTCTTACCAGTGCCTGGAGAACTGTGGGGGCTGTACTCCTGACAGTGGTGAGG	1260
Db	1201	GACCCATGTTCTTACCAGTGCCTGGAGAACTGTGGGGGCTGTACTCCTGACAGTGGTGAGG	1260
Qу	1261	AAAGGGGGAGACATGTCAAAGACCATGTATGTGGACTACAAAACAGAGGATGGTTCTGCC	1320
Db	1261	AAAGGGGGAGACATGTCAAAGACCATGTATGTGGACTACAAAACAGAGGATGGTTCTGCC	1320
Qу	1321	AATGCAGGGGCTGACTATGAGTTCACAGAGGGCACGGTGGTTCTGAAGCCAGGAGAGACC	1380

Db	1321	AATGCAGGGGCTGACTATGAGTTCACAGAGGGCACGGTGGTTCTGAAGCCAGGAGAGACC	1380
Qy	1381	CAGAAGGAGTTCTCCGTGGGCATAATTGATGACGACATTTTTGAGGAGGATGAACACTTC	1440
Db	1381	CAGAAGGAGTTCTCCGTGGGCATAATTGATGACGACATTTTTGAGGAGGATGAACACTTC	1440
Qy	1441	TTTGTAAGGTTGAGCAATGTCCGCATAGAGGAGGAGCAGCCAGAGGAGGGGGATGCCTCCA	1500
Db	1441	TTTGTAAGGTTGAGCAATGTCCGCATAGAGGAGGAGCAGCCAGAGGAGGGGGATGCCTCCA	1500
Qу	1501	GCAATATTCAACAGTCTTCCCTTGCCTCGGGCTGTCCTAGCCTCCCCTTGTGTGGCCACA	1560
Db	1501	GCAATATTCAACAGTCTTCCCTTGCCTCGGGCTGTCCTAGCCTCCCCTTGTGTGGCCACA	1560
Qу	1561	GTTACCATCTTGGATGATGACCATGCAGGCATCTTCACTTTTGAATGTGATACTATTCAT	1620
Db	1561	GTTACCATCTTGGATGATGACCATGCAGGCATCTTCACTTTTGAATGTGATACTATTCAT	1620
Qу	1621	GTCAGTGAGAGTATTGGTGTTATGGAGGTCAAGGTTCTGCGGACATCAGGTGCCCGGGGT	1680
Db	1621	GTCAGTGAGAGTATTGGTGTTATGGAGGTCAAGGTTCTGCGGACATCAGGTGCCCGGGGT	1680
Qy	1681	ACAGTCATCGTCCCCTTTAGGACAGTAGAAGGGACAGCCAAGGGTGGCGGTGAGGACTTT	1740
Db	1681	ACAGTCATCGTCCCCTTTAGGACAGTAGAAGGGACAGCCAAGGGTGGCGGTGAGGACTTT	1740
Qу	1741	GAAGACACATATGGGGAGTTGGAATTCAAGAATGATGAAACTGTGAAAACCATAAGGGTT	1800
Db	1741	GAAGACACATATGGGGAGTTGGAATTCAAGAATGATGAAAACTGTGAAAACCATAAGGGTT	1800
Qу	1801	AAAATAGTAGATGAGGAGGAATACGAAAGGCAAGAGAATTTCTTCATTGCCCTTGGTGAA	1860
Db	1801	AAAATAGTAGATGAGGAGGAATACGAAAGGCAAGAGAATTTCTTCATTGCCCTTGGTGAA	1860
Qу	1861	CCGAAATGGATGGAACGTGGAATATCAGATGTGACAGACA	1920
Db	1861	CCGAAATGGATGGAACGTGGAATATCAGGTGTGACAGACA	1920
Qу	1921	GAGGAGGCCAAGAGGATAGCAGAGATGGGAAAGCCAGTATTGGGTGAACACCCCAAACTA	1980
Db	1921	GAGGAGGCCAAGAGGATAGCAGAGATGGGAAAGCCAGTATTGGGTGAACACCCCAAACTA	1980
Qy	1981	GAAGTCATCATTGAAGAGTCCTATGAGTTCAAGACTACGGTGGACAAACTGATCAAGAAG	2040
Db	1981	GAAGTCATCATTGAAGAGTCCTATGAGTTCAAGACTACGGTGGACAAACTGATCAAGAAG	2040
Qy	2041	ACAAACCTGGCCTTGGTTGTGGGGACCCATTCCTGGAGGGACCAGTTCATGGAGGCCATC	2100
Db	2041	ACAAACCTGGCCTTGGTTGTGGGGACCCATTCCTGGAGGGACCAGTTCATGGAGGCCATC	2100
Qу	2101	ACCGTCAGTGCAGCAGGGATGAGGATGAGTGAATCCGGGGAGGAGGAGGCTGCCCTCC	2160
Db	2101	ACCGTCAGTGCAGCAGGGATGAGGATGAGTCCGGGGAGGAGGAGGCTGCCCTCC	2160
Qу	2161	TGCTTTGACTACGTCATGCACTTCCTGACTGTCTTCTGGAAGGTGCTGTTTGCCTGTGTG	2220
Db	2161	TGCTTTGACTACGTCATGCACTTCCTGACTGTCTTCTGGAAGGTGCTGTTTGCCTGTGTG	2220

```
2221 CCCCCACAGAGTACTGCCACGGCTGGGCCTGCTTCGCCGTCTCCATCCTCATCATTGGC 2280
Qу
           Db
       2221 CCCCCACAGAGTACTGCCACGGCTGGGCCTGCTTCGCCGTCTCCATCCTCATCATTGGC 2280
       2281 ATGCTCACCGCCATCATTGGGGACCTGGCCTCGCACTTCGGCTGCACCATTGGTCTCAAA 2340
Qу
           Db
       2281 ATGCTCACCGCCATCATTGGGGACCTGGCCTCGCACTTCGGCTGCACCATTGGTCTCAAA 2340
       2341 GATTCAGTCACAGCTGTTGTTTTCGTGGCATTTGGCACCTCTGTCCCAGATACGTTTGCC 2400
Qy
           2341 GATTCAGTCACAGCTGTTGTTTTCGTGGCATTTGGCACCTCTGTCCCAGATACGTTTGCC 2400
Db
       2401 AGCAAAGCTGCCCTCCAGGATGTATATGCAGACGCCTCCATTGGCAACGTGACGGGC 2460
Qу
           2401 AGCAAAGCTGCTCCCAGGATGTATATGCAGACGCCTCCATTGGCAACGTGACGGGC 2460
Db
       2461 AGCAACGCCGTCAATGTCTTCCTGGGCATCGGCCTGGCCTGGTCCGTGGCCGCCATCTAC 2520
Qу
           2461 AGCAACGCCGTCAATGTCTTCCTGGGCATCGGCCTGGCCTGGTCCGTGGCCGCCATCTAC 2520
Db
       2521 TGGGCTCTGCAGGGACAGGAGTTCCACGTGTCGGCCGGCACACTGGCCTTCTCCGTCACC 2580
Qу
           2521 TGGGCTCTGCAGGGACAGGAGTTCCACGTGTCGGCCGGCACACTGGCCTTCTCCGTCACC 2580
Db
       2581 CTCTTCACCATCTTTGCATTTGTCTGCATCAGCGTGCTCTTGTACCGAAGGCGGCCGCAC 2640
Qу
           2581 CTCTTCACCATCTTTGCATTTGTCTGCATCAGCGTGCTCTTGTACCGAAGGCGGCCGCAC 2640
Db
       2641 CTGGGAGGGGAGCTTGGTGGCCCCCGTGGCTGCAAGCTCGCCACAACATGGCTCTTTGTG 2700
Qу
           2641 CTGGGAGGGGAGCTTGGTGGCCCCCGTGGCTGCAAGCTCGCCACAACATGGCTCTTTGTG 2700
Db
       2701 AGCCTGTGGCTCCTCTACATACTCTTTGCCACACTAGAGGCCTATTGCTACATCAAGGGG 2760
Qу
           2701 AGCCTGTGGCTCCTCTACATACTCTTTGCCACACTAGAGGCCTATTGCTACATCAAGGGG 2760
Db
       2761 TTCTAA 2766
Qу
           2761 TTCTAA 2766
Db
RESULT 4
ABZ33735
ID
   ABZ33735 standard; cDNA; 2966 BP.
XX
AC
   ABZ33735;
XX
   30-JAN-2003 (first entry)
DT
XX
DE
   Human TRICH encoding cDNA SEQ ID NO 41.
XX
KW
    Human; TRICH; transporter and ion channel; transport disorder;
    cystic fibrosis; diabetes mellitus; Parkinson's disease; cancer;
KW
KW
    neurological disorder; Alzheimer's disease; Huntington's disease;
KW
    immunological disorder; AIDS; asthma; cell proliferative disorder;
    transgenic; gene therapy; neuroprotective; antidiabetic; cytostatic;
KW
```

KW antiparkinsonian; hypotensive; nootropic; antianaemic; anticonvulsant; KW cerebroprotective; cardiant; anti-HIV; human immunodeficiency virus; KW antiasthmatic; antiatherosclerotic; antigout; antiarteriosclerotic; KW hepatotropic; antiinflammatory; virucide; cytostatic; gene; ss. XX OS Homo sapiens. XX PN WO200246415-A2. XX PD 13-JUN-2002. XX PF 05-DEC-2001; 2001WO-US046963. XX PR 08-DEC-2000; 2000US-0254303P. 15-DEC-2000; 2000US-0256190P. PR 21-DEC-2000; 2000US-0257504P. PR 12-JAN-2001; 2001US-0261546P. PR 19-JAN-2001; 2001US-0262832P. PR 26-JAN-2001; 2001US-0264377P. PR PR 02-FEB-2001; 2001US-0266019P. XX (INCY-) INCYTE GENOMICS INC. PA XX PΙ Lee EA, Baughn MR, Yue H, Ding L, Raumann BE, Hafalia AJA; PΙ Khan FA, Nguyen DB, Elliott VS, Ramkumar J, Walia NK, Ison CH; PΙ Lu Y, Gandhi AR, Warren BA, Duggan BM, Tribouley CM, Burford N; PΙ Lu DAM, Lal PG, Yao MG, Xu Y, Bruns CM, Thangavelu K, Swarnakar A; Tang YT, Azimzai Y, Thornton M, Arvizu C, Policky JL; PΙ XX DR WPI; 2002-519667/55. DR P-PSDB; ABP74104. XX PΤ Novel human transporter and ion channel polypeptide, useful in diagnosis, PT prevention or treatment of transport, neurological, muscle, immunological and cell proliferative disorders. PTXX PS Claim 96; SEQ ID NO 41; 146pp + Sequence Listing; English. XX CC The invention relates to human transporter and ion channel polypeptide CC (TRICH) (I) selected from one of 32 polypeptide sequences (ABP74096-CC ABP74127), a naturally occurring polypeptide comprising a sequence having CC at least sequence 90 % identity to (I) or a biologically active or CC immunogenic fragment of (I). (I) is useful for screening a compound for CC effectiveness as an agonist or antagonist, for screening a compound that CC specifically binds (I) or modulates the activity of (I) and for preparing CC a polyclonal or monoclonal antibody by hybridoma technology. CC Polynucleotides (II, ABZ33727-ABZ33758) encoding (I) are useful for CC screening a compound altering gene expression. (I) and (II) are useful in CC a diagnostic tests for a condition or a disease associated with the CC expression of TRICH in a biological sample, especially disorders selected CC from a transport disorder such as cystic fibrosis, diabetes mellitus, CC Parkinson's disease, cardiac disorders, neurological disorders such as Alzheimer's disease, Huntington's disease, muscle disorders, CC CC immunological disorder such as AIDS, asthma and atherosclerosis, and cell CC proliferative disorder such as arteriosclerosis, cirrhosis, hepatitis and CC cancer. (II) is useful for creating knock-in humanised animals or

transgenic animals to model human diseases, in somatic or germline gene

CC

```
CC
    therapy, to generate a transcript image of a tissue or cell type, for
CC
   detecting differences in the chromosomal location due to translocation,
CC
    inversion among normal, carrier or affected individuals and for mapping
CC
    genomic sequences. Note: The sequence data for this patent is not
CC
    represented in the printed specification but is based on sequence
    information supplied to Derwent by the European Patent Office
CC
XX
SO
   Sequence 2966 BP; 692 A; 725 C; 809 G; 740 T; 0 U; 0 Other;
 Query Match
                    99.9%; Score 2764.4; DB 6; Length 2966;
                    100.0%;
 Best Local Similarity
                           Pred. No. 0;
 Matches 2765; Conservative
                         0;
                            Mismatches
                                       1:
                                          Indels
                                                  0;
                                                            0;
                                                     Gaps
         1 ATGGCGTGGTTAAGGTTGCAGCCTCTCACCTCTGCCTTCCTCCATTTTGGGCTGGTTACC 60
Qу
           201 ATGGCGTGGTTAAGGTTGCAGCCTCTCACCTCTGCCTTCCTCCATTTTGGGCTGGTTACC 260
Db
        61 TTTGTGCTCTTCCTGAATGGTCTTCGAGCAGAGGCTGGTGGCTCAGGGGACGTGCCAAGC 120
Qу
           261 TTTGTGCTCTTGCTGAATGGTCTTCGAGCAGAGGCTGGTGGCTCAGGGGACGTGCCAAGC 320
Db
       121 ACAGGGCAGAACAATGAGTCCTGTTCAGGGTCATCGGACTGCAAGGAGGGTGTCATCCTG 180
Qу
           321 ACAGGGCAGAACAATGAGTCCTGTTCAGGGTCATCGGACTGCAAGGAGGGTGTCATCCTG 380
Db
       181 CCAATCTGGTACCCGGAGAACCCTTCCCTTGGGGACAAGATTGCCAGGGTCATTGTCTAT 240
Qу
           381 CCAATCTGGTACCCGGAGAACCCTTCCCTTGGGGACAAGATTGCCAGGGTCATTGTCTAT 440
Db
       241 TTTGTGGCCCTGATATACATGTTCCTTGGGGTGTCCATCATTGCTGACCGCTTCATGGCA 300
Qу
           441 TTTGTGGCCCTGATATACATGTTCCTTGGGGTGTCCATCATTGCTGACCGCTTCATGGCA 500
Db
       301 TCTATTGAAGTCATCACCTCTCAAGAGAGGGAGGTGACAATTAAGAAACCCAATGGAGAA 360
Qу
          501 TCTATTGAAGTCATCACCTCTCAAGAGAGGGGAGGTGACAATTAAGAAACCCAATGGAGAA 560
Db
       361 ACCAGCACACCACTATTCGGGTCTGGAATGAAACTGTCTCCAACCTGACCCTTATGGCC 420
Qу
           561 ACCAGCACACCACTATTCGGGTCTGGAATGAAACTGTCTCCAACCTGACCCTTATGGCC 620
Db
       421 CTGGGTTCCTCTGCTCCTGAGATACTCCTCTCTTTAATTGAGGTGTGTGGTCATGGGTTC 480
Qу
           621 CTGGGTTCCTCTGCTCCTGAGATACTCCTCTCTTTAATTGAGGTGTGTGGTCATGGGTTC 680
Db
       481 ATTGCTGGTGATCTGGGACCTTCTACCATTGTAGGGAGTGCAGCCTTCAACATGTTCATC 540
Qу
           681 ATTGCTGGTGATCTGGGACCTTCTACCATTGTAGGGAGTGCAGCCTTCAACATGTTCATC 740
Db
       541 ATCATTGGCATCTGTGTCTACGTGATCCCAGACGGAGAGACTCGCAAGATCAAGCATCTA 600
Qy
           741 ATCATTGGCATCTGTGTCTACGTGATCCCAGACGGAGAGACTCGCAAGATCAAGCATCTA 800
Db
       601 CGAGTCTTCTTCATCACCGCTGCTTGGAGTATCTTTGCCTACATCTGGCTCTATATGATT 660
Qу
           801 CGAGTCTTCTTCATCACCGCTGCTTGGAGTATCTTTGCCTACATCTGGCTCTATATGATT 860
Db
```

Qу	661	CTGGCAGTCTTCTCCCCTGGTGTGGTCCAGGTTTGGGAAGGCCTCCTCACTCTTCTTC	720
Db	861		920
Qу	721	TTTCCAGTGTGTCCTTCTGGCCTGGGTGGCAGATAAACGACTGCTCTTCTACAAATAC	780
Db	921	TTTCCAGTGTGTCCTTCTGGCCTGGGTGGCAGATAAACGACTGCTCTTCTACAAATAC	980
QУ	781	ATGCACAAAAGTACCGCACAGACAAACACCGAGGAATTATCATAGAGACAGAGGGTGAC	840
Db	981	ATGCACAAAAAGTACCGCACAGACAAACACCGAGGAATTATCATAGAGACAGAGGGTGAC	1040
Qу	841	CACCCTAAGGGCATTGAGATGGGTGGGAAAATGATGAATTCCCATTTTCTAGATGGGAAC	900
Db	1041	CACCCTAAGGGCATTGAGATGGGAAAATGATGAATTCCCATTTTCTAGATGGGAAC	1100
Qу	901	CTGGTGCCCCTGGAAGGGAAGTGGATGAGTCCCGCAGAGAGATGATCCGGATTCTC	960
Db	1101	CTGGTGCCCCTGGAAGGAAGGAAGTGATCCCGCAGAGAGATGATCCGGATTCTC	1160
Qу	961	AAGGATCTGAAGCAAAAACACCCAGAGAAGGACTTAGATCAGCTGGTGGAGATGGCCAAT	1020
Db	1161	AAGGATCTGAAGCAAAAACACCCAGAGAAGGACTTAGATCAGCTGGTGGAGATGGCCAAT	1220
Qу	1021	TACTATGCTCTTTCCCACCAACAGAAGAGCCCCCGCTTCTACCGTATCCAAGCCACTCGT	1080
Db	1221	TACTATGCTCTTTCCCACCAACAGAAGAGCCGTGCCTTCTACCGTATCCAAGCCACTCGT	1280
Qу	1081	ATGATGACTGGTGCAGGCAATATCCTGAAGAAACATGCAGCAGAACAAGCCAAGAAGGCC	1140
Db	1281	ATGATGACTGGTGCAGGCAATATCCTGAAGAAACATGCAGCAGAACAAGCCAAGAAGGCC	1340
Qу	1141	TCCAGCATGAGCGAGGTGCACCCGATGAGCCTGAGGACTTTATTTCCAAGGTCTTCTTT	1200
Db	1341	TCCAGCATGAGCGAGGTGCACCCGATGAGCCTGAGGACTTTATTTCCAAGGTCTTCTTT	1400
Qу	1201	GACCCATGTTCTTACCAGTGCCTGGAGAACTGTGGGGCTGTACTCCTGACAGTGGTGAGG	1260
Db	1401	GACCCATGTTCTTACCAGTGCCTGGAGAACTGTGGGGGCTGTACTCCTGACAGTGGTGAGG	1460
Qу	1261	AAAGGGGAGACATGTCAAAGACCATGTATGTGGACTACAAAACAGAGGATGGTTCTGCC	1320
Db	1461	AAAGGGGGAGACATGTCAAAGACCATGTATGTGGACTACAAAACAGAGGATGGTTCTGCC	1520
Qу	1321	AATGCAGGGGCTGACTATGAGTTCACAGAGGGCACGGTGGTTCTGAAGCCAGGAGAGACC	1380
Db	1521	AATGCAGGGGCTGACTATGAGTTCACAGAGGGCACGGTGGTTCTGAAGCCAGGAGAGACC	1580
Qу	1381	CAGAAGGAGTTCTCCGTGGGCATAATTGATGACGACATTTTTGAGGAGGATGAACACTTC	1440
Db	1581	CAGAAGGAGTTCTCCGTGGGCATAATTGATGACGACATTTTTGAGGAGGATGAACACTTC	1640
Qу	1441	TTTGTAAGGTTGAGCAATGTCCGCATAGAGGAGGAGCAGCCAGAGGAGGGGATGCCTCCA	1500
Db	1641		1700
Ov	1501	GCAATATTCAACAGTCTTCCCTTGCCTCGGGCTGTCCTAGCCTCCCCTTGTGTGTG	1560

.

Db	1701		1760
Qy	1561	GTTACCATCTTGGATGATGACCATGCAGGCATCTTCACTTTTGAATGTGATACTATTCAT	1620
Db	1761		1820
Qу	1621	GTCAGTGAGAGTATTGGTGTTATGGAGGTCAAGGTTCTGCGGACATCAGGTGCCCGGGGT	1680
Db	1821		1880
Qу	1681	ACAGTCATCGTCCCCTTTAGGACAGTAGAAGGGACAGCCAAGGGTGGCGGTGAGGACTTT	1740
Db	1881	ACAGTCATCGTCCCCTTTAGGACAGTAGAAGGGACAGCCAAGGGTGGCGGTGAGGACTTT	1940
Qу	1741	GAAGACACATATGGGGAGTTGGAATTCAAGAATGATGAAAACTGTGAAAACCATAAGGGTT	1800
Db	1941	GAAGACACATATGGGGAGTTGGAATTCAAGAATGATGAAAACTGTGAAAACCATAAGGGTT	2000
QУ	1801	AAAATAGTAGATGAGGAGGAATACGAAAGGCAAGAGAATTTCTTCATTGCCCTTGGTGAA	1860
Db	2001	AAAATAGTAGATGAGGAAGAAATACGAAAGGCAAGAGAATTTCTTCATTGCCCTTGGTGAA	2060
Qу	1861	CCGAAATGGATGGAACGTGGAATATCAGATGTGACAGACA	1920
Db	2061	CCGAAATGGATGGAACGTGGAATATCAGATGTGACAGACA	2120
Qу	1921	GAGGAGGCCAAGAGGATAGCAGAGATGGGAAAGCCAGTATTGGGTGAACACCCCAAACTA	1980
Db	2121	GAGGAGGCCAAGAGATAGCAGAGATGGGAAAGCCAGTATTGGGTGAACACCCCAAACTA	2180
Qу	1981	GAAGTCATCATTGAAGAGTCCTATGAGTTCAAGACTACGGTGGACAAACTGATCAAGAAG	2040
Db	2181	GAAGTCATCATTGAAGAGTCCTATGAGTTCAAGACTACGGTGGACAAACTGATCAAGAAG	2240
Qу	2041	ACAAACCTGGCCTTGGTTGTGGGGACCCATTCCTGGAGGGACCAGTTCATGGAGGCCATC	2100
Db	2241	ACAAACCTGGCCTTGGTTGTGGGGACCCATTCCTGGAGGGACCAGTTCATGGAGGCCATC	2300
Qу	2101	ACCGTCAGTGCAGCAGGGGATGAGGATGAATCCGGGGAGGAGGAGGCTGCCCTCC	2160
Db	2301	ACCGTCAGTGCAGCAGGGATGAGGATGAATCCGGGGAGGAGGAGGCTGCCCTCC	2360
QУ	2161	TGCTTTGACTACGTCATGCACTTCCTGACTGTCTTCTGGAAGGTGCTGTTTGCCTGTGTG	2220
Db	2361	TGCTTTGACTACGTCATGCACTTCCTGACTGTCTTCTGGAAGGTGCTGTTTTGCCTGTGTG	2420
QУ	2221	CCCCCACAGAGTACTGCCACGGCTGGGCCTGCTTCGCCGTCTCCATCCTCATCATTGGC	2280
Db	2421	CCCCCACAGAGTACTGCCACGGCTGGGCCTGCTTCGCCGTCTCCATCATCATTGGC	2480
Qу	2281	ATGCTCACCGCCATCATTGGGGACCTGGCCTCGCACTTCGGCTGCACCATTGGTCTCAAA	2340
Db	2481	ATGCTCACCGCCATCATTGGGGACCTGGCCTCGCACTTCGGCTGCACCATTGGTCTCAAA	2540
Qy	2341	GATTCAGTCACAGCTGTTGTTTTCGTGGCATTTTGGCACCTCTGTCCCAGATACGTTTGCC	2400

```
2541 GATTCAGTCACAGCTGTTGTTTTCGTGGCATTTGGCACCTCTGTCCCAGATACGTTTGCC 2600
Db
Qy
       2401 AGCAAAGCTGCCCTCCAGGATGTATATGCAGACGCCTCCATTGGCAACGTGACGGGC 2460
           2601 AGCAAAGCTGCCGCCTCCAGGATGTATATGCAGACGCCTCCATTGGCAACGTGACGGGC 2660
Db
       2461 AGCAACGCCGTCAATGTCTTCCTGGGCATCGGCCTGGCCTGGTCCGTGGCCGCCATCTAC 2520
Qy
           2661 AGCAACGCCGTCAATGTCTTCCTGGGCATCGGCCTGGCCTGGTCCGTGGCCGCCATCTAC 2720
Db
       2521 TGGGCTCTGCAGGGACAGGAGTTCCACGTGTCGGCCGGCACACTGGCCTTCTCCGTCACC 2580
Qу
           2721 TGGGCTCTGCAGGGACAGGAGTTCCACGTGTCGGCCGGCACACTGGCCTTCTCCGTCACC 2780
Db
       2581 CTCTTCACCATCTTTGCATTTGTCTGCATCAGCGTGCTCTTGTACCGAAGGCGGCCGCAC 2640
Qу
           2781 CTCTTCACCATCTTTGCATTTGTCTGCATCAGCGTGCTCTTGTACCGAAGGCGGCCGCAC 2840
Db
       2641 CTGGGAGGGGAGCTTGGTGGCCCCCGTGGCTGCAAGCTCGCCACAACATGGCTCTTTGTG 2700
Qу
           Db
       2841 CTGGGAGGGGAGCTTGGTGGCCCCCGTGGCTGCAAGCTCGCCACAACATGGCTCTTTGTG 2900
       2701 AGCCTGTGGCTCCTCTACATACTCTTTGCCACACTAGAGGCCTATTGCTACATCAAGGGG 2760
QУ
           2901 AGCCTGTGGCTCCTCTACATACTCTTTGCCACACTAGAGGCCTATTGCTACATCAAGGGG 2960
Db
       2761 TTCTAA 2766
Qу
           2961 TTCTAA 2966
Db
RESULT 5
ABN83428
    ABN83428 standard; cDNA; 2782 BP.
TD
XX
AC
    ABN83428;
XX
DT
    21-AUG-2002 (first entry)
XX
DΕ
    Human transporter protein coding sequence.
XX
KW
    Human; sodium/calcium exchanger; transporter; brain; heart; kidney; lung;
KW
    spleen; testis; leukocyte; foetal brain; chromosome 14; gene; ss.
XX
OS
    Homo sapiens.
XX
FH
                 Location/Qualifiers
    Key
                 10. .2775
FT
    CDS
FT
                 /*tag= a
                 /product= "Human transporter"
FT
XX
PN
    WO200233086-A2.
XX
PD
    25-APR-2002.
XX
    17-OCT-2001; 2001WO-US032152.
PF
XX
```

```
PR
    17-OCT-2000; 2000US-0240836P.
    13-MAR-2001; 2001US-00804474.
PR
XX
PA
    (PEKE ) PE CORP NY.
XX
    Merkulov GV, Ketchum KA, Shao W, Yan C, Di Francesco V;
PΙ
PΙ
    Beasley EM;
XX
DR
    WPI; 2002-479677/51.
    P-PSDB; ABB83246.
DR
XX
РΤ
    Human transporter peptide related to sodium/calcium exchanger subfamily
PΤ
    for identifying modulators useful for treating a disease or condition
PT
    mediated by human transporter protein.
XX
PS
    Claim 4; Fig 1; 200pp; English.
XX
CC
    The present sequence is the coding sequence of a human transporter
CC
    protein, which is related to the sodium/calcium exchanger subfamily.
    Experimental data indicates expression of the transporter gene in humans
CC
CC
    in brain, heart, kidney, lung, spleen, testis, leukocyte and foetal
    brain. The gene of the transporter was mapped to chromosome 14 by ePCR
CC
XX
    Sequence 2782 BP; 655 A; 685 C; 766 G; 676 T; 0 U; 0 Other;
SO
 Query Match
                     99.8%; Score 2761.2; DB 6; Length 2782;
                     99.9%; Pred. No. 0;
 Best Local Similarity
 Matches 2763; Conservative
                           0; Mismatches
                                          3;
                                             Indels
                                                                0;
          1 ATGGCGTGGTTAAGGTTGCAGCCTCTCACCTCTGCCTTCCTCCATTTTGGGCTGGTTACC 60
Qу
            Db
         10 ATGGCGTGGTTAAGGTTGCAGCCTCTCACCTCTGCCTTCCTCCATTTTGGGCTGGTTACC 69
         61 TTTGTGCTCTTCCTGAATGGTCTTCGAGCAGAGGCTGGTGGCTCAGGGGACGTGCCAAGC 120
Qу
            70 TTTGTGCTCTTCCTGAATGGTCTTCGAGCAGAGGCTGGTGGCTCAGGGGACGTGCCAAGC 129
Db
        121 ACAGGGCAGAACAATGAGTCCTGTTCAGGGTCATCGGACTGCAAGGAGGGTGTCATCCTG 180
Qу
            130 ACAGGGCAGAACAATGAGTCCTGTTCAGGGTCATCGGACTGCAAGGAGGGTGTCATCCTG 189
Db
        181 CCAATCTGGTACCCGGAGAACCCTTCCCTTGGGGACAAGATTGCCAGGGTCATTGTCTAT 240
Qу
            190 CCAATCTGGTACCCGGAGAACCCTTCCCTTGGGGACAAGATTGCCAGGGTCATTGTCTAT 249
Db
        241 TTTGTGGCCCTGATATACATGTTCCTTGGGGTGTCCATCATTGCTGACCGCTTCATGGCA 300
Qу
            250 TTTGTGGCCCTGATATACATGTTCCTTGGGGTGTCCATCATTGCTGACCGCTTCATGGCA 309
Db
        301 TCTATTGAAGTCATCACCTCTCAAGAGAGGGAGGTGACAATTAAGAAACCCAATGGAGAA 360
Qу
            Db
        310 TCTATTGAAGTCATCACCTCTCAAGAGAGGGAGGTGACAATTAAGAAACCCAATGGAGAA 369
       . 361 ACCAGCACAACCACTATTCGGGTCTGGAATGAAACTGTCTCCAACCTGACCCTTATGGCC 420
Qу
            370 ACCAGCACACCACTATTCGGGTCTGGAATGAAACTGTCTCCAACCTGACCCTTATGGCC 429
Db
```

Qу	421	CTGGGTTCCTCTGAGATACTCCTCTCTTTAATTGAGGTGTGTGGTCATGGGTTC	480
Db	430	CTGGGTTCCTCTGAGATACTCCTCTTTAATTGAGGTGTGTGGTCATGGGTTC	489
QУ	481	ATTGCTGGTGATCTGGGACCTTCTACCATTGTAGGGAGTGCAGCCTTCAACATGTTCATC	540
Db	490	ATTGCTGGTGATCTGGGACCTTCTACCATTGTAGGGAGTGCAGCCTTCAACATGTTCATC	549
Qу	541	ATCATTGGCATCTGTGTCTACGTGATCCCAGACGGAGAGACTCGCAAGATCAAGCATCTA	600
Db	550	ATCATTGGCATCTGTGTCTACGTGATCCCAGACGGAGAGACTCGCAAGATCAAGCATCTA	609
Qу	601	CGAGTCTTCTTCATCACCGCTGCTTGGAGTATCTTTGCCTACATCTGGCTCTATATGATT	660
Db	610	CGAGTCTTCTTCATCACCGCTGCTTGGAGTATCTTTGCCTACATCTGGCTCTATATGATT	669
Qу	661	CTGGCAGTCTTCTCCCCTGGTGTGGTCCAGGTTTGGGAAGGCCTCCTCACTCTTCTTC	720
Db	670	CTGGCAGTCTTCTCCCCTGGTGTGGTCCAGGTTTGGGAAGGCCTCCTCACTCTTCTTC	729
Qу	721	TTTCCAGTGTGTCCTTCTGGCCTGGGTGGCAGATAAACGACTGCTCTTCTACAAATAC	780
Db	730	TTTCCAGTGTGTCCTTCTGGCCTGGGTGGCAGATAAACGACTGCTCTTCTACAAATAC	789
Qу	781	ATGCACAAAAAGTACCGCACAGACAACACCGAGGAATTATCATAGAGACAGAGGGTGAC	840
Db	790	ATGCACAAAAAGTACCGCACAGACAAACACCGAGGAATTATCATAGAGACAGAGGGTGAC	849
Qу	841	CACCCTAAGGGCATTGAGATGGGAAAATGATGAATTCCCATTTTCTAGATGGGAAC	900
Db	850	CACCCTAAGGGCATTGAGATGGGAAAATGATGAATTCCCATTTTCTAGATGGGAAC	909
Qу	901	CTGGTGCCCTGGAAGGGAAGGAAGTGGATGATCCCGCAGAGAGATGATCCGGATTCTC	960
Db	910	CTGGTGCCCCTGGAAGGGAAGGAAGTGGATGAGTCCCGCAGAGAGATGATCCGGATCCTC	969
Qу	961	AAGGATCTGAAGCAAAAACACCCAGAGAAGGACTTAGATCAGCTGGTGGAGATGGCCAAT	1020
Db	970	AAGGATCTGAAGCAAAAACACCCAGAGAAGGACTTAGATCAGCTGGTGGAGATGGCCAAT	1029
Qу	1021	TACTATGCTCTTTCCCACCAACAGAAGAGCCGCGCCTTCTACCGTATCCAAGCCACTCGT	1080
Db	1030	TACTATGCTCTTTCCCACCAACAGAAGAGCCGCGCCTTCTACCGTATCCAAGCCACTCGT	1089
Qу	1081	ATGATGACTGGTGCAGGCAATATCCTGAAGAAACATGCAGCAGAACAAGCCAAGAAGGCC	1140
Db	1090	ATGATGACTGGTGCAGGCAATATCCTGAAGAAACATGCAGCAGAACAAGCCAAGAAGGCC	1149
Qу	1141	TCCAGCATGAGCGAGGTGCACACCGATGAGCCTGAGGACTTTATTTCCAAGGTCTTCTTT	1200
Db	1150	TCCAGCATGAGCGAGGTGCACACCGATGAGCCTGAGGACTTTATTTCCAAGGTCTTCTTT	1209
Qу	1201	GACCCATGTTCTTACCAGTGCCTGGAGAACTGTGGGGCTGTACTCCTGACAGTGGTGAGG	1260
Db	1210		1269
Qу	1261	AAAGGGGGAGACATGTCAAAGACCATGTATGTGGACTACAAAACAGAGGATGGTTCTGCC	1320

Db .	1270	AAAGGGGGAGACATGTCAAAGACCATGTATGTGGACTACAAAACAGAGGATGGTTCTGCC	1329
Qу	1321	AATGCAGGGGCTGACTATGAGTTCACAGAGGGCACGGTGGTTCTGAAGCCAGGAGAGACC	1380
Db	1330	AATGCAGGGGCTGACTATGAGTTCACAGAGGGCACGGTGGTTCTGAAGCCAGGAGAGACC	1389
Qу	1381	CAGAAGGAGTTCTCCGTGGGCATAATTGATGACGACATTTTTGAGGAGGATGAACACTTC	1440
Db	1390	CAGAAGGAGTTCTCCGTGGGCATAATTGATGACGACATTTTTGAGGAGGATGAACACTTC	1449
QУ	1441	TTTGTAAGGTTGAGCAATGTCCGCATAGAGGAGGAGCAGCCAGAGGAGGGGGATGCCTCCA	1500
Db	1450	TTTGTAAGGTTGAGCAATGTCCGCATAGAGGAGGAGCAGCCAGAGGAGGAGGGATGCCTCCA	1509
Qу	1501	GCAATATTCAACAGTCTTCCCTTGCCTCGGGCTGTCCTAGCCTCCCCTTGTGTGGCCACA	1560
Db	1510	GCAATATTCAACAGTCTTCCCTTGCCTCGGGCTGTCCTAGCCTCCCCTTGTGTGGCCACA	1569
QУ	1561	GTTACCATCTTGGATGATGACCATGCAGGCATCTTCACTTTTGAATGTGATACTATTCAT	1620
Db	1570	GTTACCATCTTGGATGATGACCATGCAGGCATCTTCACTTTTGAATGTGATACTATTCAT	1629
QУ	1621	GTCAGTGAGAGTATTGGTGTTATGGAGGTCAAGGTTCTGCGGACATCAGGTGCCCGGGGT	1680
Db	1630	GTCAGTGAGAGTATTGGTGTTATGGAGGTCAAGGTTCTGCGGACATCAGGTGCCCGGGGT	1689
Qу	1681	ACAGTCATCGTCCCCTTTAGGACAGTAGAAGGGACAGCCAAGGGTGGCGGTGAGGACTTT	1740
Db	1690	ACAGTCATCGTCCCCTTTAGGACAGTAGAAGGGACAGCCAAGGGTGGCGGTGAGGACTTT	1749
QУ	1741	GAAGACACATATGGGGAGTTGGAATTCAAGAATGATGAAAACTGTGAAAACCATAAGGGTT	1800
Db	1750	GAAGACACATATGGGGAGTTGGAATTCAAGAATGATGAAAACTGTGAAAACCATAAGGGTT	1809
QУ	1801	AAAATAGTAGATGAGGAGGAATACGAAAGGCAAGAGAATTTCTTCATTGCCCTTGGTGAA	1860
Db	1810	AAAATAGTAGATGAGGAGGAATACGAAAGGCAAGAGAATTTCTTCATTGCCCTTGGTGAA	1869
Qу	1861	CCGAAATGGATGGAACGTGGAATATCAGATGTGACAGACA	1920
Db	1870	CCGAAATGGATGGAACGTGGAATATCAGATGTGACAGGAAGCTGACTATGGAAGAA	1929
QУ	1921	GAGGAGGCCAAGAGGATAGCAGAGATGGGAAAGCCAGTATTGGGTGAACACCCCAAACTA	1980
Db	1930	GAGGAGGCCAAGAGGATAGCAGAGATGGGAAAGCCAGTATTGGGTGAACACCCCAAACTG	1989
Qу	1981	GAAGTCATCATTGAAGAGTCCTATGAGTTCAAGACTACGGTGGACAAACTGATCAAGAAG	2040
Db	1990	GAAGTCATCATTGAAGAGTCCTATGAGTTCAAGACTACGGTGGACAAACTGATCAAGAAG	2049
Qу	2041	ACAAACCTGGCCTTGGTTGTGGGGACCCATTCCTGGAGGGACCAGTTCATGGAGGCCATC	2100
Db	2050	ACAAACCTGGCCTTGGTTGTGGGGACCCATTCCTGGAGGGACCAGTTCATGGAGGCCATC	2109
QУ	2101	ACCGTCAGTGCAGCAGGGGATGAGGATGAATCCGGGGAGGAGGAGGCTGCCCTCC	2160

```
Db
      2110 ACCGTCAGTGCAGCAGGGGATGAGGATGAGGATGAATCCGGGGAGGAGGGGTGCCCTCC 2169
      2161 TGCTTTGACTACGTCATGCACTTCCTGACTGTCTTCTGGAAGGTGCTGTTTGCCTGTGTG 2220
Qy
          2170 TGCTTTGACTACGTCATGCACTTCCTGACTGTCTTCTGGAAGGTGCTGTTTGCCTGTGTG 2229
Db
      2221 CCCCCACAGAGTACTGCCACGGCTGGGCCTGCTTCGCCGTCTCCATCCTCATCATTGGC 2280
Qу
          2230 CCCCCACAGAGTACTGCCACGGCTGGGCCTGCTTCGCCGTCTCCATCCTCATCATTGGC 2289
Db
      2281 ATGCTCACCGCCATCATTGGGGACCTGGCCTCGCACTTCGGCTGCACCATTGGTCTCAAA 2340
Qу
          2290 ATGCTCACCGCCATCATTGGGGACCTGGCCTCGCACTTCGGCTGCACCATTGGTCTCAAA 2349
Db
      2341 GATTCAGTCACAGCTGTTGTTTTCGTGGCATTTGGCACCTCTGTCCCAGATACGTTTGCC 2400
Qу
          2350 GATTCGGTCACAGCTGTTGTTTTCGTGGCATTTGGCACCTCTGTCCCAGATACGTTTGCC 2409
Db
      2401 AGCAAAGCTGCCCTCCAGGATGTATATGCAGACGCCTCCATTGGCAACGTGACGGGC 2460
Qy
          2410 AGCAAAGCTGCTGCCCTCCAGGATGTATATGCAGACGCCTCCATTGGCAACGTGACGGGC 2469
Db
      2461 AGCAACGCCGTCAATGTCTTCCTGGGCATCGGCCTGGCCTGGTCCGTGGCCGCCATCTAC 2520
Qy
          2470 AGCAACGCCGTCAATGTCTTCCTGGGCATCGGCCTGGCCTGGTCCGTGGCCGCCATCTAC 2529
Db
      2521 TGGGCTCTGCAGGGACAGGAGTTCCACGTGTCGGCCGGCACACTGGCCTTCTCCGTCACC 2580
Qу
          2530 TGGGCTCTGCAGGGACAGGAGTTCCACGTGTCGGCCGGCACACTGGCCTTCTCCGTCACC 2589
Db
      2581 CTCTTCACCATCTTTGCATTTGTCTGCATCAGCGTGCTCTTGTACCGAAGGCGGCCGCAC 2640
Qу
          2590 CTCTTCACCATCTTTGCATTTGTCTGCATCAGCGTGCTCTTGTACCGAAGGCGGCCGCAC 2649
Db
      2641 CTGGGAGGGGAGCTTGGTGGCCCCCGTGGCTGCAAGCTCGCCACAACATGGCTCTTTGTG 2700
Qу
          2650 CTGGGAGGGGAGCTTGGTGGCCCCCGTGGCTGCAAGCTCGCCACAACATGGCTCTTTGTG 2709
Db
      2701 AGCCTGTGGCTCCTCTACATACTCTTTGCCACACTAGAGGCCTATTGCTACATCAAGGGG 2760
Qу
          2710 AGCCTGTGGCTCCTCTACATACTCTTTGCCACACTAGAGGCCTATTGCTACATCAAGGGG 2769
Db
      2761 TTCTAA 2766
Qy
          11111
      2770 TTCTAA 2775
Db
RESULT 6
ABO78865
   ABQ78865 standard; cDNA; 2769 BP.
XX
AC
   ABQ78865;
XX
DT
   09-OCT-2002
             (first entry)
XX
DE
   Human ion exchanger protein #1 cDNA GCA mutant.
```

XX

```
Human; ion exchanger protein; NHIEP; nootropic; cytostatic; gene therapy;
KW
    antiarthritic; virucide; chemotherapeutic; cancer; arthritis; antiviral;
KW
KW
    gene; ss; mutant.
XX
    Homo sapiens.
OS
os
    Synthetic.
XX
FH
    Kev
                   Location/Oualifiers
FT
    mutation
                   replace(2113. .2115,-)
FT
                    /*tag=a
XX
PN
    WO200259316-A2.
XX
PD
    01-AUG-2002.
XX
PF
    22-JAN-2002; 2002WO-US001817.
XX
PR
    23-JAN-2001; 2001US-0263384P.
XX
PΑ
    (LEXI-) LEXICON GENETICS INC.
XX
PΙ
    Friddle CJ, Hilbun E;
XX
DR
    WPI; 2002-599791/64.
XX
PT
    Novel polynucleotides encoding human ion exchanger proteins that are
PT
    structurally related to mammalian sodium-calcium exchanger proteins,
PT
    useful for drug screening, diagnosis and in gene therapy of biological
PT
    disorders.
XX
PS
    Disclosure; Page; 42pp; English.
XX
CC
    The invention relates to a novel human ion exchanger protein (NHIEP),
CC
    that shares structural similarity with mammalian sodium-calcium exchanger
CC
    proteins, and potassium dependent versions of the same. The NHIEP of the
CC
    invention has nootropic, cytostatic, antiarthritic, and virucide
CC
    activity. The polynucleotide may have a use in gene therapy. NHIEPs can
CC
    be targeted by drugs, oligos, antibodies etc., in order to treat disease
CC
    or to therapeutically augment the efficacy of chemotherapeutic agents
CC
    used in the treatment of cancer, arthritis, or as antiviral agents. The
CC
    sequence represents a mutant form of a NHIEP of the invention. Note: The
CC
    present sequence is not shown in the specification but is derived from
CC
    the human NHIEP sequence shown as SEQ ID 1 (ABQ78861)
XX
    Sequence 2769 BP; 656 A; 679 C; 761 G; 673 T; 0 U; 0 Other;
SQ
                        99.5%;
                                Score 2753; DB 6; Length 2769;
 Query Match
  Best Local Similarity
                        99.9%; Pred. No. 0;
                                                              3;
 Matches 2766; Conservative
                               0; Mismatches
                                                0; Indels
                                                                  Gaps
                                                                         1:
           1 ATGGCGTGGTTAAGGTTGCAGCCTCTCACCTCTGCCTTCCTCCATTTTGGGCTGGTTACC 60
Qy
             1 ATGGCGTGGTTAAGGTTGCAGCCTCTCACCTCTGCCTTCCTCCATTTTGGGCTGGTTACC 60
Dh
          61 TTTGTGCTCTTCCTGAATGGTCTTCGAGCAGAGGCTGGTGGCTCAGGGGACGTGCCAAGC 120
Qy
             61 TTTGTGCTCTTCCTGAATGGTCTTCGAGCAGGGCTGGTGGCTCAGGGGACGTGCCAAGC 120
Db
```

Qу	121	ACAGGGCAGAACAATGAGTCCTGTTCAGGGTCATCGGACTGCAAGGAGGGTGTCATCCTG	180
Db	121		180
Qу	181	CCAATCTGGTACCCGGAGAACCCTTCCCTTGGGGACAAGATTGCCAGGGTCATTGTCTAT	240
Db	181		240
Qу	241	TTTGTGGCCCTGATATACATGTTCCTTGGGGTGTCCATCATTGCTGACCGCTTCATGGCA	300
Db	241	TTTGTGGCCCTGATATACATGTTCCTTGGGGTGTCCATCATTGCTGACCGCTTCATGGCA	300
Qу	301	TCTATTGAAGTCATCACCTCTCAAGAGAGGGAGGTGACAATTAAGAAACCCAATGGAGAA	360
Db	301	TCTATTGAAGTCATCACCTCTCAAGAGAGGGGAGGTGACAATTAAGAAACCCAATGGAGAA	360
Qу	361	ACCAGCACAACCACTATTCGGGTCTGGAATGAAACTGTCTCCAACCTGACCCTTATGGCC	420
Db	361	ACCAGCACAACCACTATTCGGGTCTGGAATGAAACTGTCTCCAACCTGACCCTTATGGCC	420
Qу	421	CTGGGTTCCTCTGAGATACTCCTCTCTTTAATTGAGGTGTGTGGTCATGGGTTC	480
Db	421	CTGGGTTCCTCTGAGATACTCCTCTTTAATTGAGGTGTGTGGTCATGGGTTC	480
Qy	481	ATTGCTGGTGATCTGGGACCTTCTACCATTGTAGGGAGTGCAGCCTTCAACATGTTCATC	540
Db	481	ATTGCTGGTGATCTGGGACCTTCTACCATTGTAGGGAGTGCAGCCTTCAACATGTTCATC	540
Qy	541	ATCATTGGCATCTGTGTCTACGTGATCCCAGACGGAGAGCTCGCAAGATCAAGCATCTA	600
Db	541	ATCATTGGCATCTGTGTCTACGTGATCCCAGACGGAGAGACTCGCAAGATCAAGCATCTA	600
Qу	601	CGAGTCTTCTTCATCACCGCTGCTTGGAGTATCTTTGCCTACATCTGGCTCTATATGATT	660
Db	601	CGAGTCTTCTTCATCACCGCTGCTTGGAGTATCTTTGCCTACATCTGGCTCTATATGATT	660
Qу	661	CTGGCAGTCTTCTCCCCTGGTGTGGTCCAGGTTTGGGAAGGCCTCCTCACTCTCTTC	720
Db	661		720
Qу	721	TTTCCAGTGTGTCCTTCTGGCCTGGGTGGCAGATAAACGACTGCTCTTCTACAAATAC	780
Db	721	TTTCCAGTGTGTCCTTCTGGCCTGGGTGGCAGATAAACGACTGCTCTTCTACAAATAC	780
Qy	781	ATGCACAAAAGTACCGCACAGACAACACCGAGGAATTATCATAGAGACAGAGGGTGAC	840
Db	781	ATGCACAAAAAGTACCGCACAGACAAACACCGAGGAATTATCATAGAGACAGAGGGTGAC	840
Qу	841	CACCCTAAGGGCATTGAGATGGGAAAATGATGAATTCCCATTTTCTAGATGGGAAC	900
Db	841		900
Qу	901	CTGGTGCCCCTGGAAGGGAAGGAGAGTGGATGAGTCCCGCAGAGAGATGATCCCGGATTCTC	960
Db	901		960

Qy	961	AAGGATCTGAAGCAAAAACACCCAGAGAAGGACTTAGATCAGCTGGTGGAGATGGCCAAT	1020
Db	961		1020
Qу	1021	TACTATGCTCTTTCCCACCAACAGAAGAGCCGCGCCTTCTACCGTATCCAAGCCACTCGT	1080
Db	1021	TACTATGCTCTTTCCCACCAACAGAAGAGCCGCGCCTTCTACCGTATCCAAGCCACTCGT	1080
Qу	1081	ATGATGACTGGTGCAGCAATATCCTGAAGAAACATGCAGCAGAACAAGCCAAGAAGGCC	1140
Db	1081		1140
Qу	1141		1200
Db	1141	TCCAGCATGAGCGAGGTGCACACCGATGAGCCTGAGGACTTTATTTCCAAGGTCTTCTTT	1200
Qy	1201	GACCCATGTTCTTACCAGTGCCTGGAGAACTGTGGGGCTGTACTCCTGACAGTGGTGAGG	1260
Db	1201		1260
Qу	1261	AAAGGGGGAGACATGTCAAAGACCATGTATGTGGACTACAAAACAGAGGATGGTTCTGCC	1320
Db	1261	AAAGGGGGAGACATGTCAAAGACCATGTATGTGGACTACAAAACAGAGGATGGTTCTGCC	1320
Qу	1321	AATGCAGGGGCTGACTATGAGTTCACAGAGGGCACGGTGGTTCTGAAGCCAGGAGAGACC	1380
Db	1321	AATGCAGGGGCTGACTATGAGTTCACAGAGGGCACGGTGGTTCTGAAGCCAGGAGAGACC	1380
Qу	1381	CAGAAGGAGTTCTCCGTGGGCATAATTGATGACGACATTTTTGAGGAGGATGAACACTTC	1440
Db	1381	CAGAAGGAGTTCTCCGTGGGCATAATTGATGACGACATTTTTGAGGAGGATGAACACTTC	1440
Qy	1441	TTTGTAAGGTTGAGCAATGTCCGCATAGAGGAGGAGCAGCCAGAGGAGGGGGATGCCTCCA	1500
Db	1441	TTTGTAAGGTTGAGCAATGTCCGCATAGAGGAGGAGCAGCCAGAGGAGGGGGATGCCTCCA	1500
Qу	1501	GCAATATTCAACAGTCTTCCCTTGCCTCGGGCTGTCCTAGCCTCCCCTTGTGTGGCCACA	1560
Db	1501	GCAATATTCAACAGTCTTCCCTTGCCTCGGGCTGTCCTAGCCTCCCCTTGTGTGGCCACA	1560
Qу	1561	GTTACCATCTTGGATGATGACCATGCAGGCATCTTCACTTTTGAATGTGATACTATTCAT	1620
Db	1561	GTTACCATCTTGGATGACCATGCAGGCATCTTCACTTTTGAATGTGATACTATTCAT	1620
Qy	1621	GTCAGTGAGAGTATTGGTGTTATGGAGGTCAAGGTTCTGCGGACATCAGGTGCCCGGGGT	1680
Db	1621	GTCAGTGAGAGTATTGGTGTTATGGAGGTCAAGGTTCTGCGGACATCAGGTGCCCGGGGT	1680
Qy	1681	ACAGTCATCGTCCCCTTTAGGACAGTAGAAGGGACAGCCAAGGGTGGCGGTGAGGACTTT	1740
Db	1681	ACAGTCATCGTCCCCTTTAGGACAGTAGAAGGGACAGCCAAGGGTGGCGGTGAGGACTTT	1740
Qу	1741	GAAGACACATATGGGGAGTTGGAATTCAAGAATGATGAAAACTGTGAAAACCATAAGGGTT	1800
Db	1741	GAAGACACATATGGGGAGTTGGAATTCAAGAATGATGAAAACTGTGAAAACCATAAGGGTT	1800
Qу	1801	${\tt AAAATAGTAGATGAGGAATACGAAAGGCAAGAGAATTTCTTCATTGCCCTTGGTGAA}$	1860

•			
Db	1801	AAAATAGTAGATGAGGAGAATACGAAAGGCAAGAGAATTTCTTCATTGCCCTTGGTGAA	1860
Qу	1861	CCGAAATGGATGGAACGTGGAATATCAGATGTGACAGACA	1920
Db	1861	CCGAAATGGATGGAACGTGGAATATCAGATGTGACAGACA	1920
Qу	1921	GAGGAGGCCAAGAGGATAGCAGAGATGGGAAAGCCAGTATTGGGTGAACACCCCAAACTA	1980
Db	1921	GAGGAGGCCAAGAGATAGCAGAGATGGGAAAGCCAGTATTGGGTGAACACCCCAAACTA	1980
Qу	1981	GAAGTCATCATTGAAGAGTCCTATGAGTTCAAGACTACGGTGGACAAACTGATCAAGAAG	2040
Db	1981	GAAGTCATCATTGAAGAGTCCTATGAGTTCAAGACTACGGTGGACAAACTGATCAAGAAG	2040
Qу	2041	ACAAACCTGGCCTTGGTTGTGGGGACCCATTCCTGGAGGGACCAGTTCATGGAGGCCATC	2100
Db	2041	ACAAACCTGGCCTTGGTTGTGGGGACCCATTCCTGGAGGGACCAGTTCATGGAGGCCATC	2100
Qу	2101	ACCGTCAGTGCAGCAGGGGATGAGGATGAGGATGAATCCGGGGAGGAGGAGGCTGCCC	2157
Db	2101	ACCGTCAGTGCAGCAGCAGGGATGAGGATGAGGATGAATCCGGGGAGGAGGAGGCTGCCC	2160
Qу	2158	TCCTGCTTTGACTACGTCATGCACTTCCTGACTGTCTTCTGGAAGGTGCTGTTTGCCTGT	2217
Db	2161	TCCTGCTTTGACTACGTCATGCACTTCCTGACTGTCTTCTGGAAGGTGCTGTTTGCCTGT	2220
Qу	2218	GTGCCCCCACAGAGTACTGCCACGGCTGGGCCTGCTTCGCCGTCTCCATCCTCATCATT	2277
Db	2221	GTGCCCCCACAGAGTACTGCCACGGCTGGGCCTGCTTCGCCGTCTCCATCCTCATCATT	2280
Qу	2278	GGCATGCTCACCGCCATCATTGGGGACCTGGCCTCGCACTTCGGCTGCACCATTGGTCTC	2337
Db	2281	GGCATGCTCACCGCCATCATTGGGGACCTGGCCTCGCACTTCGGCTGCACCATTGGTCTC	2340
Qу	2338	AAAGATTCAGTCACAGCTGTTGTTTTCGTGGCATTTGGCACCTCTGTCCCAGATACGTTT	2397
Db	2341	AAAGATTCAGTCACAGCTGTTGTTTTCGTGGCATTTGGCACCTCTGTCCCAGATACGTTT	2400
Qу	2398	GCCAGCAAAGCTGCCCTCCAGGATGTATATGCAGACGCCTCCATTGGCAACGTGACG	2457
Db	2401	GCCAGCAAAGCTGCCCTCCAGGATGTATATGCAGACGCCTCCATTGGCAACGTGACG	2460
Qу	2458	GGCAGCAACGCCGTCAATGTCTTCCTGGGCATCGGCCTGGCCTGGTCCGTGGCCGCCATC	2517
Db	2461	GGCAGCAACGCCGTCAATGTCTTCCTGGGCATCGGCCTGGCCTGGTCCGTGGCCGCCATC	2520
Qу	2518	TACTGGGCTCTGCAGGGACAGGAGTTCCACGTGTCGGCCGGC	2577
Db	2521	TACTGGGCTCTGCAGGGACAGGAGTTCCACGTGTCGGCCGGC	2580
Qу	2578	ACCCTCTTCACCATCTTTGCATTTGTCTGCATCAGCGTGCTCTTGTACCGAAGGCGGCCG	2637
Db	2581	ACCCTCTTCACCATCTTTGCATTTGTCTGCATCAGCGTGCTCTTGTACCGAAGGCGGCCG	2640
Qy	2638	CACCTGGGAGGGAGCTTGGTGGCCCCCGTGGCTGCAAGCTCGCCACAACATGGCTCTTT	2697

```
Db
         2641 CACCTGGGAGGGGAGCTTGGTGGCCCCCGTGGCTGCAAGCTCGCCACAACATGGCTCTTT 2700
Qy
        2698 GTGAGCCTGTGGCTCCTCTACATACTCTTTGCCACACTAGAGGCCTATTGCTACATCAAG 2757
             Db
        2701 GTGAGCCTGTGGCTCCTCTACATACTCTTTGCCACACTAGAGGCCTATTGCTACATCAAG 2760
        2758 GGGTTCTAA 2766
QУ
             2761 GGGTTCTAA 2769
Db
RESULT 7
ABQ78866
    ABQ78866 standard; cDNA; 2769 BP.
XX
AC
    ABQ78866;
XX
DT
    09-OCT-2002 (first entry)
XX
DE
    Human ion exchanger protein #1 cDNA A/G+GCA mutant.
XX
KW
    Human; ion exchanger protein; NHIEP; nootropic; cytostatic; gene therapy;
KW
    antiarthritic; virucide; chemotherapeutic; cancer; arthritis; antiviral;
KW
     gene; ss; mutant.
XX
OS
    Homo sapiens.
OS
    Synthetic.
XX
                    Location/Oualifiers
FH
    Key
FT
    mutation
                    replace(1889,A)
FT
                    /*tag= a
                    replace(2113. .2115,-)
FT
    mutation
FT
                    /*tag= b
XX
PN
    WO200259316-A2.
XX
PD
    01-AUG-2002.
XX
PF
    22-JAN-2002; 2002WO-US001817.
XX
PR
    23-JAN-2001; 2001US-0263384P.
XX
PΑ
     (LEXI-) LEXICON GENETICS INC.
XX
PΙ
    Friddle CJ, Hilbun E;
XX
DR
    WPI; 2002-599791/64.
XX
PT
    Novel polynucleotides encoding human ion exchanger proteins that are
    structurally related to mammalian sodium-calcium exchanger proteins,
PΤ
    useful for drug screening, diagnosis and in gene therapy of biological
PT
PT
    disorders.
XX
PS
    Disclosure; Page; 42pp; English.
XX
CC
    The invention relates to a novel human ion exchanger protein (NHIEP),
    that shares structural similarity with mammalian sodium-calcium exchanger
CC
```

```
CC
     proteins, and potassium dependent versions of the same. The NHIEP of the
CC
     invention has nootropic, cytostatic, antiarthritic, and virucide
CC
     activity. The polynucleotide may have a use in gene therapy. NHIEPs can
     be targeted by drugs, oligos, antibodies etc., in order to treat disease
CC
     or to therapeutically augment the efficacy of chemotherapeutic agents
CC
     used in the treatment of cancer, arthritis, or as antiviral agents. The
CC
CC
     sequence represents a mutant form of a NHIEP of the invention. Note: The
CC
     present sequence is not shown in the specification but is derived from
CC
     the human NHIEP sequence shown as SEQ ID 1 (ABQ78861)
XX
SO
```

Sequence 2769 BP; 655 A; 679 C; 762 G; 673 T; 0 U; 0 Other;

Query Match 99.5%; Score 2751.4; DB 6; Length 2769; Best Local Similarity 99.9%; Pred. No. 0; Matches 2765; Conservative 0: Mismatches 3; Gaps 1; 1: Indels 1 ATGGCGTGGTTAAGGTTGCAGCCTCTCACCTCTGCCTTCCTCCATTTTGGGCTGGTTACC 60 Qу 1 ATGGCGTGGTTAAGGTTGCAGCCTCTCACCTCTGCCTTCCTCCATTTTGGGCTGGTTACC 60 Db 61 TTTGTGCTCTTCCTGAATGGTCTTCGAGCAGAGGCTGGTGGCTCAGGGGACGTGCCAAGC 120 Qy 61 TTTGTGCTCTTCCTGAATGGTCTTCGAGCAGAGGCTGGTGGCTCAGGGGACGTGCCAAGC 120 Db 121 ACAGGGCAGAACAATGAGTCCTGTTCAGGGTCATCGGACTGCAAGGAGGGTGTCATCCTG 180 Qу 121 ACAGGGCAGAACAATGAGTCCTGTTCAGGGTCATCGGACTGCAAGGAGGGTGTCATCCTG 180 Db 181 CCAATCTGGTACCCGGAGAACCCTTCCCTTGGGGACAAGATTGCCAGGGTCATTGTCTAT 240 Qу 181 CCAATCTGGTACCCGGAGAACCCTTCCCTTGGGGACAAGATTGCCAGGGTCATTGTCTAT 240 Db Qу 241 TTTGTGGCCCTGATATACATGTTCCTTGGGGTGTCCATCATTGCTGACCGCTTCATGGCA 300 241 TTTGTGGCCCTGATATACATGTTCCTTGGGGTGTCCATCATTGCTGACCGCTTCATGGCA 300 Db

301 TCTATTGAAGTCATCACCTCTCAAGAGAGGGGAGGTGACAATTAAGAAACCCAATGGAGAA 360 Qу }}114 301 TCTATTGAAGTCATCACCTCTCAAGAGGGGGGGTGACAATTAAGAAACCCAATGGAGAA 360 Db 361 ACCAGCACAACCACTATTCGGGTCTGGAATGAAACTGTCTCCAACCTGACCCTTATGGCC 420 Qу 361 ACCAGCACACCACTATTCGGGTCTGGAATGAAACTGTCTCCAACCTGACCCTTATGGCC 420 Db 421 CTGGGTTCCTCTGCTCCTGAGATACTCCTCTCTTTAATTGAGGTGTGTGGTCATGGGTTC 480 Qy 421 CTGGGTTCCTCTGCTCCTGAGATACTCCTCTCTTTAATTGAGGTGTGTGGTCATGGGTTC 480 Db 481 ATTGCTGGTGATCTGGGACCTTCTACCATTGTAGGGAGTGCAGCCTTCAACATGTTCATC 540 Qу 481 ATTGCTGGTGATCTGGGACCTTCTACCATTGTAGGGAGTGCAGCCTTCAACATGTTCATC 540 Db 541 ATCATTGGCATCTGTGTCTACGTGATCCCAGACGGAGAGACTCGCAAGATCAAGCATCTA 600 Qу 541 ATCATTGGCATCTGTGTCTACGTGATCCCAGACGGGAGAGACTCGCAAGATCAAGCATCTA 600

601 CGAGTCTTCATCACCGCTGCTTGGAGTATCTTTGCCTACATCTGGCTCTATATGATT 660

Db

Qу

Db	601		660
Qу	661	$\tt CTGGCAGTCTTCTCCCCTGGTGTGGTCCAGGTTTGGGAAGGCCTCCTCACTCTTCTTC$	720
Db	661	CTGGCAGTCTTCTCCCCTGGTGTGGTCCAGGTTTGGGAAGGCCTCCTCACTCTTCTTC	720
Qу	721	TTTCCAGTGTGTGTCCTTCTGGCCTGGGTGGCAGATAAACGACTGCTCTTCTACAAATAC	780
Db	721	TTTCCAGTGTGTCCTTCTGGCCTGGGTGGCAGATAAACGACTGCTCTTCTACAAATAC	780
Qy	781	ATGCACAAAAGTACCGCACAGACAAACACCGAGGAATTATCATAGAGACAGAGGGTGAC	840
Db	781		840
Qу	841	CACCCTAAGGGCATTGAGATGGGAAAATGATGAATTCCCATTTTCTAGATGGGAAC	900
Db	841		900
Qу	901	CTGGTGCCCCTGGAAGGGAAGGAAGTGGATGAGTCCCGCAGAGAGATGATCCGGATTCTC	960
Db	901	CTGGTGCCCCTGGAAGGGAAGGAAGTGGATGAGTCCCGCAGAGAGATGATCCGGATTCTC	960
Qу	961	AAGGATCTGAAGCAAAAACACCCAGAGAAGGACTTAGATCAGCTGGTGGAGATGGCCAAT	1020
Db	961	AAGGATCTGAAGCAAAAACACCCAGAGAAGGACTTAGATCAGCTGGTGGAGATGGCCAAT	1020
Qу	1021	TACTATGCTCTTTCCCACCAACAGAAGAGCCGCGCCTTCTACCGTATCCAAGCCACTCGT	1080
Db	1021	TACTATGCTCTTTCCCACCAACAGAAGAGCCGCGCCTTCTACCGTATCCAAGCCACTCGT	1080
Qу	1081	ATGATGACTGGTGCAGGCAATATCCTGAAGAAACATGCAGCAGAACAAGCCAAGAAGGCC	1140
Db	1081	ATGATGACTGGTGCAGGCAATATCCTGAAGAAACATGCAGCAGAACAAGCCAAGAAGGCC	1140
Qу	1141	TCCAGCATGAGCGAGGTGCACACCGATGAGCCTGAGGACTTTATTTCCAAGGTCTTCTTT	1200
Db	1141	TCCAGCATGAGCGAGGTGCACACCGATGAGCCTGAGGACTTTATTTCCAAGGTCTTCTTT	1200
Qу	1201	GACCCATGTTCTTACCAGTGCCTGGAGAACTGTGGGGGCTGTACTCCTGACAGTGGTGAGG	1260
Db	1201	GACCCATGTTCTTACCAGTGCCTGGAGAACTGTGGGGGCTGTACTCCTGACAGTGGTGAGG	1260
Qу	1261	AAAGGGGGAGACATGTCAAAGACCATGTATGTGGACTACAAAACAGAGGATGGTTCTGCC	1320
Db	1261	AAAGGGGGAGACATGTCAAAGACCATGTATGTGGACTACAAAACAGAGGATGGTTCTGCC	1320
Qу	1321	AATGCAGGGGCTGACTATGAGTTCACAGAGGGCACGGTGGTTCTGAAGCCAGGAGAGACC	1380
Db	1321	AATGCAGGGGCTGACTATGAGTTCACAGAGGGCACGGTGGTTCTGAAGCCAGGAGAGACC	1380
Qу	1381	CAGAAGGAGTTCTCCGTGGGCATAATTGATGACGACATTTTTGAGGAGGATGAACACTTC	1440
Db	1381	CAGAAGGAGTTCTCCGTGGGCATAATTGATGACGACATTTTTGAGGAGGATGAACACTTC	1440
Qу	1441	TTTGTAAGGTTGAGCAATGTCCGCATAGAGGAGGAGCAGCCAGAGGAGGGGGATGCCTCCA	1500

Db	1441 TTTGTAAGGTTGAGCAATGTCCGCATAGAGGAGGAGCAGCCAGAGGAGGAGGGATGCCTCCA 1	500
Qу	1501 GCAATATTCAACAGTCTTCCCTTGCCTCGGGCTGTCCTAGCCTCCCCTTGTGTGGCCACA 1	560
Db	1501 GCAATATTCAACAGTCTTCCCTTGCCTCGGGCTGTCCTAGCCTCCCCTTGTGTGGCCACA 1	560
Qу	1561 GTTACCATCTTGGATGATGACCATGCAGGCATCTTCACTTTTGAATGTGATACTATTCAT 16	620
Db	1561 GTTACCATCTTGGATGATGACCATGCAGGCATCTTCACTTTTGAATGTGATACTATTCAT 16	620
Qу	1621 GTCAGTGAGAGTATTGGTGTTATGGAGGTCAAGGTTCTGCGGACATCAGGTGCCCGGGGT 16	680
Db	1621 GTCAGTGAGAGTATTGGTGTTATGGAGGTCAAGGTTCTGCGGACATCAGGTGCCCGGGGT 16	680
Qу	1681 ACAGTCATCGTCCCCTTTAGGACAGTAGAAGGGACAGCCAAGGGTGGCGGTGAGGACTTT 1	740
Db	1681 ACAGTCATCGTCCCCTTTAGGACAGTAGAAGGGACAGCCAAGGGTGGCGGTGAGGACTTT 1	740
Qу	1741 GAAGACACATATGGGGAGTTGGAATTCAAGAATGATGAAACTGTGAAAACCATAAGGGTT 18	800
Db	1741 GAAGACACATATGGGGAGTTGGAATTCAAGAATGATGAAAACTGTGAAAACCATAAGGGTT 18	800
Qу	1801 AAAATAGTAGATGAGGAGGAATACGAAAGGCAAGAGAATTTCTTCATTGCCCTTGGTGAA 18	860
Db	1801 AAAATAGTAGATGAGGAGGAATACGAAAGGCAAGAGAATTTCTTCATTGCCCTTGGTGAA 18	860
Qу	1861 CCGAAATGGATGGAACGTGGAATATCAGATGTGACAGACA	920
Db	1861 CCGAAATGGATGGAACGTGGAATATCAGGTGTGACAGACA	920
Qу	1921 GAGGAGGCCAAGAGGATAGCAGAGATGGGAAAGCCAGTATTGGGTGAACACCCCAAACTA 19	980
Db	1921 GAGGAGGCCAAGAGGATAGCAGAGATGGGAAAGCCAGTATTGGGTGAACACCCCAAACTA 19	980
Qy	1981 GAAGTCATCATTGAAGAGTCCTATGAGTTCAAGACTACGGTGGACAAACTGATCAAGAAG 20	040
Db	1981 GAAGTCATCATTGAAGAGTCCTATGAGTTCAAGACTACGGTGGACAAACTGATCAAGAAG 20	040
Qy	2041 ACAAACCTGGCCTTGGTTGTGGGGACCCATTCCTGGAGGGACCAGTTCATGGAGGCCATC 23	100
Db	2041 ACAAACCTGGCCTTGGTTGTGGGGACCCATTCCTGGAGGGACCAGTTCATGGAGGCCATC 21	100
Qy	2101 ACCGTCAGTGCAGCAGGGGATGAGGATGAGTGAATCCGGGGAGGAGAGGCTGCCC 21	157
Db	2101 ACCGTCAGTGCAGCAGCAGGGGATGAGGATGAGTGAATCCGGGGAGGAGAGGCTGCCC 21	160
Qy	2158 TCCTGCTTTGACTACGTCATGCACTTCCTGACTGTCTTCTGGAAGGTGCTGTTTGCCTGT 22	217
Db	2161 TCCTGCTTTGACTACGTCATGCACTTCCTGACTGTCTTCTGGAAGGTGCTGTTTGCCTGT 22	220
Qу	2218 GTGCCCCCACAGAGTACTGCCACGGCTGGGCCTGCTTCGCCGTCTCCATCCTCATCATT 22	27 <b>7</b>
Db	2221 GTGCCCCCACAGAGTACTGCCACGGCTGGGCCTGCTTCGCCGTCTCCATCCTCATCATT 22	280
QУ	2278 GGCATGCTCACCGCCATCATTGGGGACCTGGCCTCGCACTTCGGCTGCACCATTGGTCTC 23	337
Db	2281 GGCATGCTCACCGCCATCATTGGGGACCTGGCCTCGCACTTCGGCTGCACCATTGGTCTC 23	340

```
2338 AAAGATTCAGTCACAGCTGTTGTTTTCGTGGCATTTGGCACCTCTGTCCCAGATACGTTT 2397
Qу
          2341 AAAGATTCAGTCACAGCTGTTGTTTTCGTGGCATTTGGCACCTCTGTCCCAGATACGTTT 2400
Db
      2398 GCCAGCAAAGCTGCCCTCCAGGATGTATATGCAGACGCCTCCATTGGCAACGTGACG 2457
Qу
          Db
      2401 GCCAGCAAAGCTGCTGCCCTCCAGGATGTATATGCAGACGCCTCCATTGGCAACGTGACG 2460
      2458 GGCAGCAACGCCGTCAATGTCTTCCTGGGCATCGGCCTGGCCTGGTCCGTGGCCGCCATC 2517
Qу
          Db
      2461 GGCAGCAACGCCGTCAATGTCTTCCTGGGCATCGGCCTGGCCTGGTCCGTGGCCGCCATC 2520
      Qy
          Db
      2578 ACCCTCTTCACCATCTTTGCATTTGTCTGCATCAGCGTGCTCTTGTACCGAAGGCGGCCG 2637
Qу
          2581 ACCCTCTTCACCATCTTTGCATTTGTCTGCATCAGCGTGCTCTTGTACCGAAGGCGGCCG 2640
Db
      2638 CACCTGGGAGGGGAGCTTGGTGGCCCCCGTGGCTGCAAGCTCGCCACAACATGGCTCTTT 2697
Qy
          2641 CACCTGGGAGGGGAGCTTGGTGGCCCCCGTGGCTGCAAGCTCGCCACAACATGGCTCTTT 2700
Db
      2698 GTGAGCCTGTGGCTCCTCTACATACTCTTTGCCACACTAGAGGCCTATTGCTACATCAAG 2757
Qу
          2701 GTGAGCCTGTGGCTCCTCTACATACTCTTTGCCACACTAGAGGCCTATTGCTACATCAAG 2760
Db
      2758 GGGTTCTAA 2766
Qу
          11111111
      2761 GGGTTCTAA 2769
Db
RESULT 8
ABA04756
   ABA04756 standard; cDNA; 2781 BP.
XX
AC
   ABA04756;
XX
DT
   25-FEB-2002 (first entry)
XX
DΕ
   Human natrium(+)-calcium(2+) exchanger form 3 protein, HNCX3, cDNA.
XX
KW
   Human; Natrium(+)-Calcium(2+) exchanger form 3; HNCX3; chromosome 14;
KW
   cardiac failure; myocardial infarction; cardiac hypertrophy; arrhythmia;
   myocarditis; pulmonary hypertension; cardiotoxicity; cardiant; Vaccine;
KW
   coronary heart disease; renal failure; ischaemic disorder;
KW
KW
   Antiarrhythmic; Vasotropic; Hypotensive; cardiovascular disorder; ss.
XX
OS
   Homo sapiens.
XX
FH
   Key
               Location/Qualifiers
FT
   CDS
               1. .2781
FT
               /*tag= a
               /partial
FT
FT
               /product= "Human natrium(+)-calcium(2+) exchanger form 3
```

```
FΤ
                  protein, HNCX3"
FT
                  /note= "No stop codon given"
XX
PN
    WO200183744-A2.
XX
    08-NOV-2001.
PD
XX
    30-APR-2001; 2001WO-EP004886.
PF
XX
PR
    02-MAY-2000; 2000EP-00109080.
XX
PA
    (MERE ) MERCK PATENT GMBH.
XX
PΙ
    Wilm C;
XX
    WPI: 2002-041493/05.
DR
DR
    P-PSDB; AAM47745.
XX
PΤ
    New polypeptide, useful as vaccines for inducing immune response against
    diseases such as myocardial infarction, arrhythmia, ischemic disorders,
РΤ
    renal disorders in mammal.
PT
XX
PS
    Claim 4; Page 34-38; 41pp; English.
XX
CC
    The present sequence is the coding sequence for human Natrium(+)-Calcium
    (2+) exchanger form 3 (HNCX3). The HNCX3 gene maps to human chromosome
CC
CC
    14. HNCX3 and its coding sequence are useful for treating acute and
CC
    chronic cardiac failure of different aetiologies, myocardial infarction,
    cardiac hypertrophy, arrhythmia, myocarditis, pulmonary hypertension,
CC
    cardiotoxicity (e.g. induced by chemotherapy), coronary heart disease,
CC
CC
    acute and chronic renal failure, ischaemic disorders of skeletal muscle
CC
    and ischaemic brain disorders of different aetiologies
XX
SO
    Sequence 2781 BP; 658 A; 678 C; 765 G; 680 T; 0 U; 0 Other;
 Query Match
                       98.8%;
                             Score 2733.4; DB 6; Length 2781;
 Best Local Similarity
                      99.3%; Pred. No. 0;
 Matches 2762; Conservative
                             0; Mismatches
                                            1; Indels
                                                        18; Gaps
          1 ATGGCGTGGTTAAGGTTGCAGCCTCTCACCTCTGCCTTCCTCCATTTTGGGCTGGTTACC 60
Qу
            Db
          1 ATGGCGTGGTTAAGGTTGCAGCCTCTCACCTCTGCCTTCCTCCATTTTGGGCTGGTTACC 60
         61 TTTGTGCTCTTCCTGAATGGTCTTCGAGCAGAGGCTGGTGGCTCAGGGGACGTGCCAAGC 120
Qν
            Db
         61 TTTGTGCTCTTCCTGAATGGTCTTCGAGCAGAGGCTGGTGGCTCAGGGGACGTGCCAAGC 120
         121 ACAGGGCAGAACAATGAGTCCTGTTCAGGGTCATCGGACTGCAAGGAGGGTGTCATCCTG 180
Qv
            121 ACAGGGCAGAACAATGAGTCCTGTTCAGGGTCATCGGACTGCAAGGAGGGTGTCATCCTG 180
Db
         181 CCAATCTGGTACCCGGAGAACCCTTCCCTTGGGGACAAGATTGCCAGGGTCATTGTCTAT 240
Qy
            181 CCAATCTGGTACCCGGAGAACCCTTCCCTTGGGGACAAGATTGCCAGGGTCATTGTCTAT 240
Db
         241 TTTGTGGCCCTGATATACATGTTCCTTGGGGTGTCCATCATTGCTGACCGCTTCATGGCA 300
Qу
```

Db	241	$\tt TTTGTGGCCCTGATATACATGTTCCTTGGGGTGTCCATCATTGCTGACCGCTTCATGGCA$	300
Qy	301	TCTATTGAAGTCATCACCTCTCAAGAGAGGGGGGGTGACAATTAAGAAACCCAATGGAGAA	360
Db	301		360
Qy	361	ACCAGCACAACCACTATTCGGGTCTGGAATGAAACTGTCTCCAACCTGACCCTTATGGCC	420
Db	361		420
Qу	421	CTGGGTTCCTCTGCTCCTGAGATACTCCTCTCTTTAATTGAGGTGTGTGGTCATGGGTTC	480
Db	421	CTGGGTTCCTCTGAGATACTCCTCTTTAATTGAGGTGTGTGGTCATGGGTTC	480
Qу	481	ATTGCTGGTGATCTGGGACCTTCTACCATTGTAGGGAGTGCAGCCTTCAACATGTTCATC	540
Db	481	ATTGCTGGTGATCTGGGACCTTCTACCATTGTAGGGAGTGCAGCCTTCAACATGTTCATC	540
Qу	541	ATCATTGGCATCTGTGTCTACGTGATCCCAGACGGAGAGACTCGCAAGATCAAGCATCTA	600
Db	541	ATCATTGGCATCTGTGTCTACGTGATCCCAGACGGAGAGACTCGCAAGATCAAGCATCTA	600
Qу	601	CGAGTCTTCTTCATCACCGCTGCTTGGAGTATCTTTGCCTACATCTGGCTCTATATGATT	660
Db	601	CGAGTCTTCTTCATCACCGCTGCTTGGAGTATCTTTGCCTACATCTGGCTCTATATGATT	660
Qy	661	CTGGCAGTCTTCTCCCCTGGTGTGGTCCAGGTTTGGGAAGGCCTCCTCACTCTTCTTC	720
Db	661	CTGGCAGTCTTCTCCCCTGGTGTGGTCCAGGTTTGGGAAGGCCTCCTCACTCTTCTTC	720
Qy	721	TTTCCAGTGTGTCCTTCTGGCCTGGGTGGCAGATAAACGACTGCTCTTCTACAAATAC	780
Db	721	TTTCCAGTGTGTCCTTCTGGCCTGGGTGGCAGATAAACGACTGCTCTTCTACAAATAC	780
Qу	781	ATGCACAAAAGTACCGCACAGACAAACACCGAGGAATTATCATAGAGACAGAGGGTGAC	840
Db	781	ATGCACAAAAAGTACCGCACAGACAAACACCGAGGAATTATCATAGAGACAGAGGGTGAC	840
Qу	841	CACCCTAAGGGCATTGAGATGGGAAAATGATGAATTCCCATTTTCTAGATGGGAAC	900
Db	841	CACCCTAAGGGCATTGAGATGGGAAAATGATGAATTCCCATTTTCTAGATGGGAAC	900
Qу	901	CTGGTGCCCCTGGAAGGGAAGGAAGTGGATGATCCCGCAGAGAGATGATCCCGGATTCTC	960
Db	901	CTGGTGCCCCTGGAAGGAAGGAAGTGGATGATCCCGCAGAGAGATGATCCCGGATTCTC	960
Qу	961	AAGGATCTGAAGCAAAAACACCCAGAGAAGGACTTAGATCAGCTGGTGGAGATGGCCAAT	1020
Db	961	AAGGATCTGAAGCAAAAACACCCAGAGAAGGACTTAGATCAGCTGGTGGAGATGGCCAAT	1020
Qу	1021	TACTATGCTCTTTCCCACCAACAGAAGAGCCGCGCCTTCTACCGTATCCAAGCCACTCGT	1080
Db	1021	TACTATGCTCTTTCCCACCAACAGAAGAGCCGTGCCTTCTACCGTATCCAAGCCACTCGT	1080
Qy	1081	ATGATGACTGGTGCAGGCAATATCCTGAAGAAACATGCAGCAGAACAAGCCAAGAAGGCC	1140
Db	1081	ATGATGACTGCTGCAGGCAATATCCTGAAGAACATGCAGCAGAACAAGCCAAGAAGGCC	1140

Qy	1141	TCCAGCATGAGCGAGGTGCACACCGATGAGCCTGAGGACTTTATTTCCAAGGTCTTCTTT	1200
Db	1141	${\tt TCCAGCATGAGCGAGGTGCACACCGATGAGCCTGAGGACTTTATTTCCAAGGTCTTCTTT}$	1200
Qу	1201	GACCCATGTTCTTACCAGTGCCTGGAGAACTGTGGGGGCTGTACTCCTGACAGTGGTGAGG	1260
Db	1201	GACCCATGTTCTTACCAGTGCCTGGAGAACTGTGGGGGCTGTACTCCTGACAGTGGTGAGG	1260
Qy	1261	AAAGGGGGAGACATGTCAAAGACCATGTATGTGGACTACAAAACAGAGGATGGTTCTGCC	1320
Db	1261	AAAGGGGGAGACATGTCAAAGACCATGTATGTGGACTACAAAACAGAGGATGGTTCTGCC	1320
Qy	1321	AATGCAGGGGCTGACTATGAGTTCACAGAGGGCACGGTGGTTCTGAAGCCAGGAGAGACC	1380
Db	1321	AATGCAGGGGCTGACTATGAGTTCACAGAGGGCACGGTGGTTCTGAAGCCAGGAGAGACC	1380
Qу	1381	CAGAAGGAGTTCTCCGTGGGCATAATTGATGACGACATTTTTGAGGAGGATGAACACTTC	1440
Db	1381	CAGAAGGAGTTCTCCGTGGGCATAATTGATGACGACATTTTTTGAGGAGGATGAACACTTC	1440
Qy	1441	TTTGTAAGGTTGAGCAATGTCCGCATAGAGGAGGAGCAGCCAGAGGAGGAGGGGATGCCTCCA	1500
Db	1441	TTTGTAAGGTTGAGCAATGTCCGCATAGAGGAGGAGCAGCCAGAGGAGGGGATGCCTCCA	1500
Qy	1501	GCAATATTCAACAGTCTTCCCTTGCCTCGGGCTGTCCTAGCCTCCCCTTGTGTGGCCACA	1560
Db	1501	GCAATATTCAACAGTCTTCCCTTGCCTCGGGCTGTCCTAGCCTCCCCTTGTGTGGCCACA	1560
Qу	1561	GTTACCATCTTGGATGATGACCATGCAGGCATCTTCACTTTTGAATGTGATACTATTCAT	1620
Db	1561	GTTACCATCTTGGATGATGACCATGCAGGCATCTTCACTTTTGAATGTGATACTATTCAT	1620
Qy	1621	GTCAGTGAGAGTATTGGTGTTATGGAGGTCAAGGTTCTGCGGACATCAGGTGCCCGGGGT	1680
Db	1621	GTCAGTGAGAGTATTGGTGTTATGGAGGTCAAGGTTCTGCGGACATCAGGTGCCCGGGGT	1680
Qу	1681	ACAGTCATCGTCCCCTTTAGGACAGTAGAAGGGACAGCCAAGGGTGGCGGTGAGGACTTT	1740
Db	1681	ACAGTCATCGTCCCCTTTAGGACAGTAGAAGGGACAGCCAAGGGTGGCGGTGAGGACTTT	1740
Qу	1741	GAAGACACATATGGGGAGTTGGAATTCAAGAATGATGAAAACTGTGAAAACCATAAGGGTT	1800
Db	1741	GAAGACACATATGGGGAGTTGGAATTCAAGAATGATGAAAACTGTGAAAACCATAAGGGTT	1800
Qу	1801	AAAATAGTAGATGAGGAGGAATACGAAAGGCAAGAGAATTTCTTCATTGCCCTTGGTGAA	1860
Db	1801	AAAATAGTAGATGAGGAAGAATACGAAAGGCAAGAGAATTTCTTCATTGCCCTTGGTGAA	1860
Qу	1861	CCGAAATGGATGGAACGTGGAATATCAGATGTGACAGACAGG	1902
Db	1861	CCGAAATGGATGGAACGTGGAATATCAGGTGTGAGATTCTTTAAAGATGTGACAGACA	1920
Qу	1903	AAGCTGACTATGGAAGAAGAGGAGGCCAAGAGGATAGCAGAGATGGGAAAGCCAGTATTG	1962
Db	1921	AAGCTGACTATGGAAGAAGAGGAGGCCAAGAGATAGCAGAGATGGGAAAGCCAGTATTG	1980

Qy	1963	GGTGAACACCCCAAACTAGAAGTCATCATTGAAGAGTCCTATGAGTTCAAGACTACGGTG	2022
Db	1981	GGTGAACACCCCAAACTAGAAGTCATCATTGAAGAGTCCTATGAGTTCAAGACTACGGTG	2040
QУ	2023	GACAAACTGATCAAGAAGACAAACCTGGCCTTGGTTGTGGGGACCCATTCCTGGAGGGAC	2082
Db	2041	GACAAACTGATCAAGAAGACAAACCTGGCCTTGGTTGTGGGGGACCCATTCCTGGAGGGAC	2100
QУ	2083	CAGTTCATGGAGGCCATCACCGTCAGTGCAGCAGGGGATGAGGATGAGGATGAATCCGGG	2142
Db	2101	CAGTTCATGGAGGCCATCACCGTCAGTGCAGCAGGGGATGAGGATGAGGATGAATCCGGG	2160
QУ	2143	GAGGAGAGGCTGCCCTCCTGCTTTGACTACGTCATGCACTTCCTGACTGTCTTCTGGAAG	2202
Db	2161	GAGGAGAGGCTGCCTCCTGCTTTGACTACGTCATGCACTTCCTGACTGTCTTCTGGAAG	2220
QУ	2203	GTGCTGTTTGCCTGTGTGCCCCCCACAGAGTACTGCCACGGCTGGGCCTGCTTCGCCGTC	2262
Db	2221	GTGCTGTTTGCCTGTGTGCCCCCCACAGAGTACTGCCACGGCTGGGCCTGCTTCGCCGTC	2280
Qy	2263	TCCATCCTCATCATTGGCATGCTCACCGCCATCATTGGGGACCTGGCCTCGCACTTCGGC	2322
Db	2281	TCCATCCTCATCATTGGCATGCTCACCGCCATCATTGGGGACCTGGCCTCGCACTTCGGC	2340
Qy	2323	TGCACCATTGGTCTCAAAGATTCAGTCACAGCTGTTGTTTTCGTGGCATTTGGCACCTCT	2382
Db	2341	${\tt TGCACCATTGGTCTCAAAGATTCAGTCACAGCTGTTGTTTTCGTGGCATTTGGCACCTCT}$	2400
QУ	2383	GTCCCAGATACGTTTGCCAGCAAAGCTGCTGCCCTCCAGGATGTATATGCAGACGCCTCC	2442
Db	2401	GTCCCAGATACGTTTGCCAGCAAAGCTGCTGCCCTCCAGGATGTATATGCAGACGCCTCC	2460
QУ	2443	ATTGGCAACGTGACGGCAGCAACGCCGTCAATGTCTTCCTGGGCATCGGCCTGGCCTGG	2502
Db	2461	ATTGGCAACGTGACGGCAGCAACGCCGTCAATGTCTTCCTGGGCATCGGCCTGG	2520
QУ	2503	TCCGTGGCCGCCATCTACTGGGCTCTGCAGGGACAGGAGTTCCACGTGTCGGCCGGC	2562
Db	2521	TCCGTGGCCGCCATCTACTGGGCTCTGCAGGGACAGGAGTTCCACGTGTCGGCCGGC	2580
QУ		CTGGCCTTCTCCGTCACCCTCTTCACCATCTTTGCATTTGTCTGCATCAGCGTGCTCTTG	
Db	2581	CTGGCCTTCTCCGTCACCCTCTTCACCATCTTTGCATTTGTCTGCATCAGCGTGCTCTTG	2640
QУ	2623	TACCGAAGGCGCCCCCTGGGAGGGGAGCTTGGTGGCCCCCGTGGCTGCAAGCTCGCC	2682
Db	2641	TACCGAAGGCGGCCGCACCTGGGAGGGGAGCTTGGTGGCCCCCGTGGCTGCAAGCTCGCC	2700
QУ	2683	ACAACATGGCTCTTTGTGAGCCTGTGGCTCCTCTACATACTCTTTGCCACACTAGAGGCC	2742
Db		ACAACATGGCTCTTTGTGAGCCTGTGGCTCCTCTACATACTCTTTGCCACACTAGAGGCC	2760
Qу	2743	TATTGCTACATCAAGGGGTTC 2763	
Db	2761	TATTGCTACATCAAGGGGTTC 2781	

```
RESULT 9
ABX56263
     ABX56263 standard; DNA; 2685 BP.
ID
XX
AC
     ABX56263;
XX
DT
     19-FEB-2003 (first entry)
XX
DE
     Human NOV1c 248057963 DNA SEQ ID 5.
XX
KW
     NOVX; human; antidiabetic; antiarteriosclerotic; anorectic; nootropic;
KW
     metabolic; antimicrobial; neuroprotective; antiparkinsonian; cardiant;
KW
     antilipaemic; cytostatic; immunomodulatory; gene therapy; dyslipidaemia;
KW
     cardiomyopathy; metabolic disorder; diabetes; atherosclerosis; obesity;
KW
     anorexia; neurodegenerative disorder; Alzheimer's disease; cancer; gene;
KW
     Parkinson's disease; haematopoietic disorder; metabolic disturbance;
KW
     metabolic syndrome X; wasting disease; ds.
XX
OS
     Homo sapiens.
XX
PN
     W0200281625-A2.
XX
     17-OCT-2002.
PD
XX
PF
     03-APR-2002; 2002WO-US010366.
XX
PR
     03-APR-2001; 2001US-0281086P.
     05-APR-2001; 2001US-0281906P.
PR
     06-APR-2001; 2001US-0282020P.
PR
     10-APR-2001; 2001US-0282930P.
PR
     12-APR-2001; 2001US-0283444P.
PR
     12-APR-2001; 2001US-0283512P.
PR
PR
     13-APR-2001; 2001US-0283657P.
PR
     13-APR-2001; 2001US-0283678P.
     13-APR-2001; 2001US-0283710P.
PR
PR
     17-APR-2001; 2001US-0284234P.
     19-APR-2001; 2001US-0285325P.
PR
PR
     20-APR-2001; 2001US-0285381P.
     24-APR-2001; 2001US-0286068P.
PR
     25-APR-2001; 2001US-0286292P.
PR
     07-JUN-2001; 2001US-0296692P.
PR
     26-JUN-2001; 2001US-0300883P.
PR
PR
     08-AUG-2001; 2001US-0311003P.
     13-AUG-2001; 2001US-0311973P.
     16-AUG-2001; 2001US-0312901P.
PR
     14-SEP-2001; 2001US-0322283P.
PR
     05-OCT-2001; 2001US-0327448P.
PR
     31-DEC-2001; 2001US-0345734P.
PR
     03-JAN-2002; 2002US-0345755P.
PR
PR
     04-FEB-2002; 2002US-0354391P.
PR
     02-APR-2002; 2002US-00114153.
XX
PA
     (CURA-) CURAGEN CORP.
XX
PΙ
     Padigaru M,
                  Shenoy SG, Kekuda R, Rastelli L, Mezes PD;
PΙ
                  Guo X, Gerlach V, Casman SJ, Boldog FL, Li L;
     Smithson G,
PΙ
     Zerhusen BD, Tchernev VT, Gangolli EA, Vernet CAM, Spytek KA;
```

```
Malyankar UM, Patturajan M, Miller CE,
                                            Taupier RJ,
PΙ
    Peyman JA, Catterton E, Macdougall JR,
                                            Edinger SR,
                                                        Stone DJ;
ΡI
    Mazur A;
XX
    WPI; 2003-046862/04.
DR
    P-PSDB; ABU12043.
DR
XX
PT
    New isolated NOVX polypeptide useful for treating cardiomyopathy,
PT
    atherosclerosis, metabolic disorders, diabetes, obesity, infectious
PT
    disease, anorexia, neurodegenerative disorders, Alzheimer's disease and
PT
XX
PS
    Claim 3; Page 85-86; 425pp; English.
XX
CC
    This invention describes novel polypeptides, termed NOVX which have
CC
    antidiabetic, antiarteriosclerotic, anorectic, metabolic, antimicrobial,
CC
    neuroprotective, antiparkinsonian, antilipaemic, cytostatic, nootropic,
CC
    cardiant and immunomodulatory activity. The polypeptide and any
CC
    antibodies generated from it are useful in the manufacture of a
CC
    medicament for treating a syndrome associated with a human disease
    selected from a pathology associated with the NOVX polypeptide. Fragments
CC
CC
    and portions of the polynucleotides encoding NOVX polypeptides are useful
CC
    to map the location of NOVX genes on a chromosome, to identify
    individuals from minute biological samples, as DNA markers for
CC
CC
    restriction fragment length polymorphism (RFLP), and are useful to
    prepare polymerase chain reaction primers. The products of the invention
CC
    can be used in gene therapy and for treating cardiomyopathy, metabolic
CC
CC
    disorders, diabetes, atherosclerosis, obesity, infectious disease,
CC
    anorexia, neurodegenerative disorders, Alzheimer's disease, Parkinson's
CC
    disease, immune disorders, haematopoietic disorders, and various
CC
    dyslipidaemias, metabolic disturbances associated with obesity, metabolic
CC
    syndrome X and wasting disorders associated with chronic diseases and
CC
    various cancers. ABX56261-ABX56306 represent the polynucleotide fragments
CC
    which encode the NOVX polypeptides represented in ABU12041-ABU12086
XX
    Sequence 2685 BP; 645 A; 657 C; 741 G; 642 T; 0 U; 0 Other;
SQ
                        96.6%;
                                Score 2673.2; DB 7; Length 2685;
 Query Match
  Best Local Similarity
                        99.9%;
                                Pred. No. 0;
 Matches 2675; Conservative
                               0; Mismatches
                                                3; Indels
                                                             0; Gaps
                                                                        0;
          86 GAGCAGAGGCTGGTGGCTCAGGGGACGTGCCAAGCACAGGGCAGAACAATGAGTCCTGTT 145
Qy
             2 GATCCGAGGCTGGTGGCTCAGGGGACGTGCCAAGCACAGGGCAGAACAATGAGTCCTGTT 61
Db
         146 CAGGGTCATCGGACTGCAAGGAGGGTGTCATCCTGCCAATCTGGTACCCGGAGAACCCTT 205
Qу
             62 CAGGGTCATCGGACTGCAAGGAGGGTGTCATCCTGCCAATCTGGTACCCGGAGAACCCTT 121
Db
         206 CCCTTGGGGACAAGATTGCCAGGGTCATTGTCTATTTTGTGGCCCTGATATACATGTTCC 265
Qу
             Db
         122 CCCTTGGGGACAAGATTGCCAGGGTCATTGTCTATTTTGTGGCCCTGATATACATGTTCC 181
         266 TTGGGGTGTCCATCATTGCTGACCGCTTCATGGCATCTATTGAAGTCATCACCTCTCAAG 325
Qу
```

Db

QУ	326	AGAGGGAGGTGACAATTAAGAAACCCAATGGAGAAACCAGCACAACCACTATTCGGGTCT	385
Db	242	AGAGGGAGGTGACAATTAAGAAACCCAATGGAGAAACCAGCACAACCACTATTCGGGTCT	301
Qу	386	GGAATGAAACTGTCTCCAACCTGACCCTTATGGCCCTGGGTTCCTCTGCTCCTGAGATAC	445
Db	302	GGAATGAAACTGTCTCCAACCTGACCCTTATGGCCCTGGGTTCCTCTGCTCCTGAGATAC	361
Qу	446	TCCTCTCTTTAATTGAGGTGTGTGGTCATGGGTTCATTGCTGGTGATCTGGGACCTTCTA	505
Db	362	TCCTCTCTTTAATTGAGGTGTGTGGTCATGGGTTCATTGCTGGTGATCTGGGACCTTCTA	421
Qу	506	CCATTGTAGGGAGTGCAGCCTTCAACATGTTCATCATCATTGGCATCTGTGTCTACGTGA	565
Db	422	CCATTGTAGGGAGTGCAGCCTTCAACATGTTCATCATCATTGGCATCTGTGTCTACGTGA	481
Qу	566	TCCCAGACGGAGAGCTCGCAAGATCAAGCATCTACGAGTCTTCTTCATCACCGCTGCTT	625
Db	482	TCCCAGACGGAGAGCTCGCAAGATCAAACATCTACGAGTCTTCTTCATCACCGCTGCTT	541
Qу	626	GGAGTATCTTTGCCTACATCTGGCTCTATATGATTCTGGCAGTCTTCTCCCCTGGTGTGG	685
Db	542	GGAGTATCTTTGCCTACATCTGGCTCTATATGATTCTGGCAGTCTTCTCCCCTGGTGTGG	601
Qу	686	TCCAGGTTTGGGAAGGCCTCCTCACTCTTCTTCTTTCCAGTGTGTGT	745
Db	602	TCCAGGTTTGGGAAGGCCTCCTCACTCTTCTTCTTCCAGTGTGTGT	661
Qу	746	GGGTGGCAGATAAACGACTGCTCTTCTACAAATACATGCACAAAAAGTACCGCACAGACA	805
Db	662	GGGTGGCAGATAAACGACTGCTCTTCTACAAATACATGCACAAAAAGTACCGCACAGACA	721
Qу	806	AACACCGAGGAATTATCATAGAGACAGAGGGTGACCACCCTAAGGGCATTGAGATGGATG	865
Db	722	AACACCGAGGAATTATCATAGAGACAGAGGGTGACCACCCTAAGGGCATTGAGATGGATG	781
Qу	866	GGAAAATGATGAATTCCCATTTTCTAGATGGGAACCTGGTGCCCCTGGAAGGGAAGGAA	925
Db	782	GGAAAATGATGAATTCCCATTTTCTAGATGGGAACCTGGTGCCCCTGGAAGGGAAGGAA	841
Qу	926	TGGATGAGTCCCGCAGAGAGTGATCCGGATTCTCAAGGATCTGAAGCAAAAACACCCAG	985
Db	842	TGGATGAGTCCCGCAGAGAGATGATCCGGATTCTCAAGGATCTGAAGCAAAAACACCCAG	901
Qу	986	AGAAGGACTTAGATCAGCTGGTGGAGATGGCCAATTACTATGCTCTTTCCCACCAACAGA	1045
Db	902	AGAAGGACTTAGATCAGCTGGTGGAGATGGCCAATTACTATGCTCTTTCCCACCAACAGA	961
Qу	1046	AGAGCCGCCCTTCTACCGTATCCAAGCCACTCGTATGATGACTGGTGCAGGCAATATCC	1105
Db	962	AGAGCCGCGCCTTCTACCGTATCCAAGCCACTCGTATGATGACTGGTGCAGGCAATATCC	1021
Qу	1106	TGAAGAACATGCAGCAGAACAAGCCAAGAAGGCCTCCAGCATGAGCGAGGTGCACACCG	1165
Db	1022	TGAAGAAACATGCAGCAGAACAAGCCAAGAAGGCCTCCAGCATGAGCGAGGTGCACACCG	1081
Ov	1166	ATGAGCCTGAGGACTTTATTTCCAAGGTCTTCTTTGACCCATGTTCTTACCAGTGCCTGG	1225

.

Db	1082	ATGAGCCTGAGGACTTTATTTCCAAGGTCTTCTTTGACCCATGTTCTTACCAGTGCCTGG	1141
Qу	1226	AGAACTGTGGGGCTGTACTCCTGACAGTGGTGAGGAAAGGGGGAGACATGTCAAAGACCA	1285
Db	1142	AGAACTGTGGGGCTGTACTCCTGACAGTGGTGAGGAAAGGGGGGAGACATGTCAAAGACCA	1201
Qу	1286	TGTATGTGGACTACAAAACAGAGGATGGTTCTGCCAATGCAGGGGCTGACTATGAGTTCA	1345
Db	1202		1261
Qy	1346	CAGAGGGCACGGTGGTTCTGAAGCCAGGAGAGACCCAGAAGGAGTTCTCCGTGGGCATAA	1405
Db	1262	CAGAGGCACGGTGGTTCTGAAGCCAGGAGAGCCCAGAAGGAGTTCTCCGTGGGCATAA	1321
Qу	1406	TTGATGACGACATTTTTGAGGAGGATGAACACTTCTTTGTAAGGTTGAGCAATGTCCGCA	1465
Db	1322		1381
Qу	1466	TAGAGGAGGAGCAGCCAGAGGAGGGGATGCCTCCAGCAATATTCAACAGTCTTCCCTTGC	1525
Db	1382		1441
Qу	1526	CTCGGGCTGTCCTAGCCTCCCCTTGTGTGGCCACAGTTACCATCTTGGATGATGACCATG	1585
Db	1442		1501
Qy	1586	CAGGCATCTTCACTTTTGAATGTGATACTATTCATGTCAGTGAGAGTATTGGTGTTATGG	1645
Db	1502	CAGGCATCTTCACTTTTGAATGTGATACTATTCATGTCAGTGAGAGTATTGGTGTTATGG	1561
Qу	1646	AGGTCAAGGTTCTGCGGACATCAGGTGCCCGGGGTACAGTCATCGTCCCCTTTAGGACAG	1705
Db	1562	AGGTCAAGGTTCTGCGGACATCAGGTGCCCGGGGTACAGTCATCGTCCCCTTTAGGACAG	1621
Qу	1706	TAGAAGGGACAGCCAAGGGTGGCGGTGAGGACTTTGAAGACACATATGGGGAGTTGGAAT	1765
Db	1622	TAGAAGGGACAGCCAAGGGTGGCGGTGAGGACTTTGAAGACACATATGGGGAGTTGGAAT	1681
Qу	1766	TCAAGAATGATGAAAACTGTGAAAACCATAAGGGTTAAAATAGTAGATGAGGAGGAATACG	1825
Db	1682		1741
Qу	1826	AAAGGCAAGAGAATTTCTTCATTGCCCTTGGTGAACCGAAATGGATGG	1885
Db	1742		1801
Qу	1886	CAGATGTGACAGACAGGAAGCTGACTATGGAAGAAGAGGAGGCCAAGAGGATAGCAGAGA	1945
Db	1802		1861
Qy	1946	TGGGAAAGCCAGTATTGGGTGAACACCCCAAACTAGAAGTCATCATTGAAGAGTCCTATG	2005
Db	1862	TGGGAAAGCCAGTATTGGGTGAACACCCCAAACTAGAAGTCATCATTGAAGAGTCCTATG	1921
Qу	2006	AGTTCAAGACTACGGTGGACAAACTGATCAAGAAGACAAACCTGGCCTTGGTTGTGGGGA	2065

Db	1922	AGTTCAAGACTACGGTGGACAAACTGATCAAGAAGACAAACCTGGCCTTGGTTGTGGGGA	1981
QУ	2066	CCCATTCCTGGAGGGACCAGTTCATGGAGGCCATCACCGTCAGTGCAGCAGGGGATGAGG	2125
Db	1982	CCCATTCCTGGAGGGACCAGTTCATGGAGGCCATCACCGTCAGTGCAGCAGGGGATGAGG	2041
QУ	2126	ATGAGGATGAATCCGGGGAGGAGGAGGCTGCCCTCCTGCTTTGACTACGTCATGCACTTCC	2185
Db	2042	ATGAGGATGAATCCGGGGAGGAGGAGGCTGCCCTCCTGCTTTGACTACGTCATGCACTTCC	2101
QУ	2186	TGACTGTCTTCTGGAAGGTGCTGTTTGCCTGTGTGCCCCCCACAGAGTACTGCCACGGCT	2245
Db	2102	TGACTGTCTTCTGGAAGGTGCTGTTTGCCTGTGTGCCCCCCACAGAGTACTGCCACGGCT	2161
QУ	2246	GGGCCTGCTTCGCCGTCTCCATCCTCATCATTGGCATGCTCACCGCCATCATTGGGGACC	2305
Db	2162	GGGCCTGCTTCGCCGTCTCCATCCTCATCATTGGCATGCTCACCGCCATCATTGGGGACC	2221
QУ	2306	TGGCCTCGCACTTCGGCTGCACCATTGGTCTCAAAGATTCAGTCACAGCTGTTGTTTTCG	2365
Db	2222	TGGCCTCGCACTTCGGCTGCACCATTGGTCTCAAAGATTCAGTCACAGCTGTTGTTTTCG	2281
Qу	2366	TGGCATTTGGCACCTCTGTCCCAGATACGTTTGCCAGCAAAGCTGCTGCCCTCCAGGATG	2425
Db	2282	TGGCATTTGGCACCTCTGTCCCAGATACGTTTGCCAGCAAAGCTGCTGCCCTCCAGGATG	2341
Qу	2426	TATATGCAGACGCCTCCATTGGCAACGTGACGGGCAGCAACGCCGTCAATGTCTTCCTGG	2485
Db		TATATGCAGACGCCTCCATTGGCAACGTGACGGCCAGCAACGCCGTCAATGTCTTCCTGG	
Qy	2486	GCATCGGCCTGGCCGTGGCCGCCATCTACTGGGCTCTGCAGGGACAGGAGTTCC	2545
Db	2402	GCATCGGCCTGGCCGTGGCCGCCATCTACTGGGCTCTGCAGGGACAGGAGTTCC	2461
Qу		ACGTGTCGGCCGGCACACTGGCCTTCTCCGTCACCCTCTTCACCATCTTTGCATTTGTCT	
Db	2462	ACGTGTCGGCCGGCACACTGGCCTTCTCCGTCACCCTCTTCACCATCTTTGCATTTGTCT	2521
QУ	2606	GCATCAGCGTGCTCTTGTACCGAAGGCGGCCGCACCTGGGAGGGGAGCTTGGTGGCCCCC	2665
Db		GCATCAGCGTGCTCTTGTACCGAAGGCGGCCCCCCCCGCACCTGGGAGGGGAGCTTGGTGGCCCCC	
Qγ	2666	GTGGCTGCAAGCTCGCCACAACATGGCTCTTTGTGAGCCTGTGGCTCCTCTACATACTCT	2725
Db	2582	GTGGCTGCAAGCTCGCCACAACATGGCTCTTTGTGAGCCTGTGGCTCCTCTACATACTCT	2641
Qу		TTGCCACACTAGAGGCCTATTGCTACATCAAGGGGTTC 2763	
Db	2642	TTGCCACACTAGAGGCCTATTGCTACATCAAGGGGTTC 2679	

## RESULT 10

ABX56262

ID ABX56262 standard; DNA; 2840 BP.

XX

AC ABX56262;

XX

```
DT
    19-FEB-2003 (first entry)
XX
    Human NOV1b CG56558-02 DNA SEQ ID 3.
DE
XX
KW
    NOVX; human; antidiabetic; antiarteriosclerotic; anorectic; nootropic;
KW
    metabolic; antimicrobial; neuroprotective; antiparkinsonian; cardiant;
KW
    antilipaemic; cytostatic; immunomodulatory; gene therapy; dyslipidaemia;
KW
    cardiomyopathy; metabolic disorder; diabetes; atherosclerosis; obesity;
    anorexia; neurodegenerative disorder; Alzheimer's disease; cancer; gene;
KW
KW
     Parkinson's disease; haematopoietic disorder; metabolic disturbance;
KW
    metabolic syndrome X; wasting disease; ds.
XX
os
    Homo sapiens.
XX
PN
    WO200281625-A2.
XX
    17-OCT-2002.
PD
XX
    03-APR-2002; 2002WO-US010366.
PF
XX
PR
    03-APR-2001; 2001US-0281086P.
    05-APR-2001; 2001US-0281906P.
PR
    06-APR-2001; 2001US-0282020P.
PR
    10-APR-2001; 2001US-0282930P.
PR
    12-APR-2001; 2001US-0283444P.
PR
PR
    12-APR-2001; 2001US-0283512P.
    13-APR-2001; 2001US-0283657P.
PR
    13-APR-2001; 2001US-0283678P.
PR
    13-APR-2001; 2001US-0283710P.
PR
    17-APR-2001; 2001US-0284234P.
PR
     19-APR-2001; 2001US-0285325P.
PR
    20-APR-2001; 2001US-0285381P.
PR
PR
     24-APR-2001; 2001US-0286068P.
    25-APR-2001; 2001US-0286292P.
PR
     07-JUN-2001; 2001US-0296692P.
PR
PR
     26-JUN-2001; 2001US-0300883P.
     08-AUG-2001; 2001US-0311003P.
PR
     13-AUG-2001; 2001US-0311973P.
PR
     16-AUG-2001; 2001US-0312901P.
PR
     14-SEP-2001; 2001US-0322283P.
PR
     05-OCT-2001; 2001US-0327448P.
PR
     31-DEC-2001; 2001US-0345734P.
PR
     03-JAN-2002; 2002US-0345755P.
PR
PR
     04-FEB-2002; 2002US-0354391P.
     02-APR-2002; 2002US-00114153.
PR
XX
PA
     (CURA-) CURAGEN CORP.
XX
PΙ
                 Shenoy SG, Kekuda R, Rastelli L, Mezes PD;
     Padigaru M,
     Smithson G, Guo X, Gerlach V, Casman SJ, Boldog FL, Li L;
PΙ
PΙ
     Zerhusen BD, Tchernev VT, Gangolli EA, Vernet CAM, Spytek KA;
    Malyankar UM, Patturajan M, Miller CE, Taupier RJ,
PI
                                                            Heyes MP,
PΙ
     Peyman JA, Catterton E, Macdougall JR, Edinger SR,
                                                            Stone DJ;
PI
    Mazur A;
XX
DR
    WPI; 2003-046862/04.
DR
     P-PSDB; ABU12042.
```

```
XX
    New isolated NOVX polypeptide useful for treating cardiomyopathy,
PT
PT
    atherosclerosis, metabolic disorders, diabetes, obesity, infectious
    disease, anorexia, neurodegenerative disorders, Alzheimer's disease and
PT
PT
    cancer.
XX
PS
    Claim 3; Page 84; 425pp; English.
XX
CC
    This invention describes novel polypeptides, termed NOVX which have
CC
    antidiabetic, antiarteriosclerotic, anorectic, metabolic, antimicrobial,
CC
    neuroprotective, antiparkinsonian, antilipaemic, cytostatic, nootropic,
CC
    cardiant and immunomodulatory activity. The polypeptide and any
CC
    antibodies generated from it are useful in the manufacture of a
CC
    medicament for treating a syndrome associated with a human disease
CC
    selected from a pathology associated with the NOVX polypeptide. Fragments
CC
    and portions of the polynucleotides encoding NOVX polypeptides are useful
CC
    to map the location of NOVX genes on a chromosome, to identify
CC
    individuals from minute biological samples, as DNA markers for
CC
    restriction fragment length polymorphism (RFLP), and are useful to
CC
    prepare polymerase chain reaction primers. The products of the invention
CC
    can be used in gene therapy and for treating cardiomyopathy, metabolic
CC
    disorders, diabetes, atherosclerosis, obesity, infectious disease,
CC
    anorexia, neurodegenerative disorders, Alzheimer's disease, Parkinson's
CC
    disease, immune disorders, haematopoietic disorders, and various
CC
    dyslipidaemias, metabolic disturbances associated with obesity, metabolic
CC
    syndrome X and wasting disorders associated with chronic diseases and
CC
    various cancers. ABX56261-ABX56306 represent the polynucleotide fragments
CC
    which encode the NOVX polypeptides represented in ABU12041-ABU12086
XX
    Sequence 2840 BP; 668 A; 700 C; 775 G; 697 T; 0 U; 0 Other;
SO
 Query Match
                        96.1%;
                               Score 2657.6; DB 7; Length 2840;
 Best Local Similarity
                        97.6%; Pred. No. 0;
 Matches 2712; Conservative
                              0; Mismatches
                                              54; Indels
                                                           12; Gaps
                                                                       1;
           1 ATGGCGTGGTTAAGGTTGCAGCCTCTCACCTCTGCCTTCCTCCATTTTGGGCTGGTTACC 60
Qу
             Db
          63 ATGGCGTGGTTAAGGTTGCAGCCTCTCACCTCTGCCTTCCTCCATTTTGGGCTGGTTACC 122
          61 TTTGTGCTCTTCCTGAATGGTCTTCGAGCAGAGGCTGGTGGCTCAGGGGACGTGCCAAGC 120
Qу
             Db
         123 TTTGTGCTCTTCCTGAATGGTCTTCGAGCAGAGGCTGGTGGCTCAGGGGACGTGCCAAGC 182
         121 ACAGGGCAGAACAATGAGTCCTGTTCAGGGTCATCGGACTGCAAGGAGGGTGTCATCCTG 180
Qv
             183 ACAGGGCAGAACAATGAGTCCTGTTCAGGGTCATCGGACTGCAAGGAGGGTGTCATCCTG 242
Db
         181 CCAATCTGGTACCCGGAGAACCCTTCCCTTGGGGACAAGATTGCCAGGGTCATTGTCTAT 240
Qv
             243 CCAATCTGGTACCCGGAGAACCCTTCCCTTGGGGACAAGATTGCCAGGGTCATTGTCTAT 302
Db
Qy
         241 TTTGTGGCCCTGATATACATGTTCCTTGGGGTGTCCATCATTGCTGACCGCTTCATGGCA 300
```

301 TCTATTGAAGTCATCACCTCTCAAGAGAGGGAGGTGACAATTAAGAAACCCAATGGAGAA 360

Db

Qу

Db	363	TCTATTGAAGTCATCACCTCTCAAGAGAGGGGGGGGTGACAATTAAGAAACCCAATGGAGAA	422
Qу	361	ACCAGCACAACCACTATTCGGGTCTGGAATGAAACTGTCTCCAACCTGACCCTTATGGCC	420
Db	423	ACCAGCACAACCACTATTCGGGTCTGGAATGAAACTGTCTCCAACCTGACCCTTATGGCC	482
Qу	421	CTGGGTTCCTCTGAGATACTCCTCTTTAATTGAGGTGTGTGGTCATGGGTTC	480
Db	483		542
Qу	481	ATTGCTGGTGATCTGGGACCTTCTACCATTGTAGGGAGTGCAGCCTTCAACATGTTCATC	540
Db	543	ATTGCTGGTGATCTGGGACCTTCTACCATTGTAGGGAGTGCAGCCTTCAACATGTTCATC	602
Qу	541	ATCATTGGCATCTGTGTCTACGTGATCCCAGACGGAGAGACTCGCAAGATCAAGCATCTA	600
Db	603	ATCATTGGCATCTGTGTCTACGTGATCCCAGACGGAGAGACTCGCAAGATCAAGCATCTA	662
QУ	601	CGAGTCTTCTTCATCACCGCTGCTTGGAGTATCTTTGCCTACATCTGGCTCTATATGATT	660
Db	663		722
QУ	661	CTGGCAGTCTTCTCCCCTGGTGTGGTCCAGGTTTGGGAAGGCCTCCTCACTCTCTTCTTC	720
Db	723	CTGGCAGTCTTCTCCCCTGGTGTGGTCCAGGTTTGGGAAGGCCTCCTCACTCTTCTTC	782
Qу	721	TTTCCAGTGTGTCCTTCTGGCCTGGGTGGCAGATAAACGACTGCTCTTCTACAAATAC	780
Db	783	TTTCCAGTGTGTCCTTCTGGCCTGGGTGGCAGATAAACGACTGCTCTTCTACAAATAC	842
Qу	781	ATGCACAAAAGTACCGCACAGACAAACACCGAGGAATTATCATAGAGACAGAGGGTGAC	840
Db	843	ATGCACAAAAGTACCGCACAGACAAACACCGAGGAATTATCATAGAGACAGAGGGTGAC	902
QУ	841	CACCCTAAGGGCATTGAGATGGGAAAATGATGAATTCCCATTTTCTAGATGGGAAC	900
Db	903	CACCCTAAGGGCATTGAGATGGGAAAATGATGAATTCCCATTTTCTAGATGGGAAC	962
Qу	901	CTGGTGCCCCTGGAAGGGAAGGAAGTGATCCCGCAGAGAGATGATCCGGATTCTC	960
Db	963	CTGGTGCCCCTGGAAGGAAGGAAGTGATCCCGCAGAGAGATGATCCCGATTCTC	1022
Qу	961	AAGGATCTGAAGCAAAAACACCCAGAGAAGGACTTAGATCAGCTGGTGGAGATGGCCAAT	1020
Db	1023	AAGGATCTGAAGCAAAAACACCCAGAGAAGGACTTAGATCAGCTGGTGGAGATGGCCAAT	1082
Qу	1021	TACTATGCTCTTTCCCACCAACAGAAGAGCCGCGCCTTCTACCGTATCCAAGCCACTCGT	1080
Db	1083	TACTATGCTCTTTCCCACCAACAGAAGAGCCGTGCCTTCTACCGTATCCAAGCCACTCGT	1142
QУ	1081	ATGATGACTGGTGCAGGCAATATCCTGAAGAAACATGCAGCAGAACAAGCCAAGAAGGCC	1140
Db	1143	ATGATGACTGGTGCAGGCAATATCCTGAAGAAACATGCAGCAGAACAAGCCAAGAAGGCC	1202
Qу	1141	TCCAGCATGAGCGAGGTGCACACCGATGAGCCTGAGGACTTTATTTCCAAGGTCTTCTTT	1200
Db	1203	TCCAGCATGAGCGAGGTGCACACCGATGAGGCCTGAGGACTTTATTTCCAAGGTCTTCTTT	1262

Qу	1201	GACCCATGTTCTTACCAGTGCCTGGAGAACTGTGGGGGCTGTACTCCTGACAGTGGTGAGG	1260
Db	1263	GACCCATGTTCTTACCAGTGCCTGGAGAACTGTGGGGGCTGTACTCCTGACAGTGGTGAGG	1322
Qy	1261	AAAGGGGGAGACATGTCAAAGACCATGTATGTGGACTACAAAACAGAGGATGGTTCTGCC	1320
Db	1323	AAAGGGGGAGACATGTCAAAGACCATGTATGTGGACTACAAAACAGAGGATGGTTCTGCC	1382
Qу	1321	AATGCAGGGGCTGACTATGAGTTCACAGAGGGCACGGTGGTTCTGAAGCCAGGAGAGACC	1380
Db	1383	AATGCAGGGGCTGACTATGAGTTCACAGAGGGCACGGTGGTTCTGAAGCCAGGAGAGACC	1442
Qу	1381	CAGAAGGAGTTCTCCGTGGGCATAATTGATGACGACATTTTTGAGGAGGATGAACACTTC	1440
Db	1443		1502
Qу	1441	TTTGTAAGGTTGAGCAATGTCCGCATAGAGGAGGAGCAGCCAGAGGAGGAGGATGCCTCCA	1500
Db	1503	TTTGTAAGGTTGAGCAATGTCCGCATAGAGGAGGAGCAGCCAGAGGAGGAGGGATGCCTCCA	1562
Qy	1501	GCAATATTCAACAGTCTTCCCTTGCCTCGGGCTGTCCTAGCCTCCCCTTGTGTGGCCACA	1560
Db	1563		1622
Qу	1561	GTTACCATCTTGGATGATGACCATGCAGGCATCTTCACTTTTGAATGTGATACTATTCAT	1620
Db	1623	GTTACCATCTTGGATGATGACCATGCAGGCATCTTCACTTTTGAATGTGATACTATTCAT	1682
Qу	1621	GTCAGTGAGAGTATTGGTGTTATGGAGGTCAAGGTTCTGCGGACATCAGGTGCCCGGGGT	1680
Db	1683	GTCAGTGAGAGTATTGGTGTTATGGAGGTCAAGGTTCTGCGGACATCAGGTGCCCGGGGT	1742
Qу	1681	ACAGTCATCGTCCCCTTTAGGACAGTAGAAGGGACAGCCAAGGGTGGCGGTGAGGACTTT	1740
Db	1743	ACAGTCATCGTCCCCTTTAGGACAGTAGAAGGGACAGCCAAGGGTGGCGGTGAGGACTTT	1802
Qу	1741	GAAGACACATATGGGGAGTTGGAATTCAAGAATGATGAAAACTGTGAAAACCATAAGGGTT	1800
Db	1803	GAAGACACATATGGGGAGTTGGAATTCAAGAATGATGAAAACTGTCAAAACAATTCACATC	1862
Qу	1801	AAAATAGTAGATGAGGAGGAATACGAAAGGCAAGAGAATTTCTTCATTGCCCTTGGTGAA	1860
Db	1863	AAGGTAATTGATGATGAGGCATATGAGAAAAACAAGAATTACTTCATTGAGATGATGGGC	1922
Qу	1861	CCGAAATGGATGGAACGTGGAATATCAGATGTGACAGACAGGAAGCTG	1908
Db	1923		1982
Qу	1909	ACTATGGAAGAGGAGGCCAAGAGGATAGCAGAGATGGGAAAGCCAGTATTGGGTGAA	1968
Db	1983		2042
Qy	1969	CACCCCAAACTAGAAGTCATCATTGAAGAGTCCTATGAGTTCAAGACTACGGTGGACAAA	2028
Db	2043		2102

Qу	2029	CTGATCAAGAAGACAAACCTGGCCTTGGTTGTGGGGACCCATTCCTGGAGGGACCAGTTC 2	8802
Db	2103	CTGATCAAGAAGACAAACCTGGCCTTGGTTGTGGGGACCCATTCCTGGAGGGACCAGTTC 2	2162
Qу	2089	ATGGAGGCCATCACCGTCAGTGCAGCAGGGGATGAGGATGAGTGAATCCGGGGAGGAG	2148
Db	2163	ATGGAGGCCATCACCGTCAGTGCAGCAGGGGATGAGGATGAGGATGAATCCGGGGAGGAG	2222
Qy	2149	AGGCTGCCCTCCTGCTTTGACTACGTCATGCACTTCCTGACTGTCTTCTGGAAGGTGCTG 2	2208
Db	2223	AGGCTGCCCTCCTGCTTTGACTACGTCATGCACTTCCTGACTGTCTTCTGGAAGGTGCTG 2	2282
Qy	2209	TTTGCCTGTGTGCCCCCCACAGAGTACTGCCACGGCTGGGCCTGCTTCGCCGTCTCCATC 2	2268
Db	2283	TTTGCCTGTGTGCCCCCCACAGAGTACTGCCACGGCTGGGCCTGCTTCGCCGTCTCCATC 2	2342
Qу	2269	CTCATCATTGGCATGCTCACCGCCATCATTGGGGACCTGGCCTCGCACTTCGGCTGCACC 2	2328
Db	2343	CTCATCATTGGCATGCTCACCGCCATCATTGGGGACCTGGCCTCGCACTTCGGCTGCACC 2	2402
Qу	2329	ATTGGTCTCAAAGATTCAGTCACAGCTGTTGTTTTCGTGGCATTTGGCACCTCTGTCCCA 2	2388
Db	2403	ATTGGTCTCAAAGATTCAGTCACAGCTGTTGTTTTCGTGGCATTTGGCACCTCTGTCCCA 2	2462
Qy	2389	GATACGTTTGCCAGCAAAGCTGCTGCCCTCCAGGATGTATATGCAGACGCCTCCATTGGC 2	2448
Db	2463	GATACGTTTGCCAGCAAAGCTGCCCCCCCAGGATGTATATGCAGACGCCTCCATTGGC 2	2522
Qу	2449	AACGTGACGGGCAGCAACGCCGTCAATGTCTTCCTGGGCATCGGCCTGGCCTGGTCCGTG 2	2508
Db	2523	AACGTGACGGCCAGCAACGCCGTCAATGTCTTCCTGGGCATCGGCCTGGCCTGGTCCGTG 2	2582
Qy	2509	GCCGCCATCTACTGGGCTCTGCAGGGACAGGAGTTCCACGTGTCGGCCGGC	2568
Db	2583	GCCGCCATCTACTGGGCTCTGCAGGGACAGGAGTTCCACGTGTCGGCCGGC	2642
Qу	2569	TTCTCCGTCACCCTCTTCACCATCTTTGCATTTGTCTGCATCAGCGTGCTCTTGTACCGA 2	2628
Db	2643	TTCTCCGTCACCCTCTTCACCATCTTTGCATTTGTCTGCATCAGCGTGCTCTTGTACCGA 2	702
Qу	2629	AGGCGGCCGCACCTGGGAGGGGAGCTTGGTGGCCCCCGTGGCTGCAAGCTCGCCACAACA 2	2688
Db	2703	AGGCGGCCGCACCTGGGAGGGGAGCTTGGTGGCCCCCGTGGCTGCAAGCTCGCCACAACA 2	762
Qy	2689	TGGCTCTTTGTGAGCCTGTGGCTCCTCTACATACTCTTTGCCACACTAGAGGCCTATTGC 2	2748
Db	2763	TGGCTCTTTGTGAGCCTGTGGCTCCTCTACATACTCTTTGCCACACTAGAGGCCTATTGC 2	822
Qу	2749	TACATCAAGGGGTTCTAA 2766	
Db	2823	TACATCAAGGGGTTCTAA 2840	

## RESULT 11 ABX56261

ID ABX56261 standard; DNA; 2813 BP.

XX

```
AC
     ABX56261;
XX
DT
     19-FEB-2003 (first entry)
XX
DE
     Human NOV1a CG56258-01 DNA SEQ ID 1.
XX
KW
     NOVX; human; antidiabetic; antiarteriosclerotic; anorectic; nootropic;
KW
     metabolic; antimicrobial; neuroprotective; antiparkinsonian; cardiant;
KW
     antilipaemic; cytostatic; immunomodulatory; gene therapy; dyslipidaemia;
KW
     cardiomyopathy; metabolic disorder; diabetes; atherosclerosis; obesity;
KW
     anorexia; neurodegenerative disorder; Alzheimer's disease; cancer; gene;
KW
     Parkinson's disease; haematopoietic disorder; metabolic disturbance;
KW
     metabolic syndrome X; wasting disease; ds.
XX
os
     Homo sapiens.
XX
PN
    WO200281625-A2.
XX
PD
     17-OCT-2002.
XX
PF
     03-APR-2002; 2002WO-US010366.
XX
PR
     03-APR-2001; 2001US-0281086P.
     05-APR-2001; 2001US-0281906P.
PR
PR
     06-APR-2001; 2001US-0282020P.
     10-APR-2001; 2001US-0282930P.
PR
     12-APR-2001; 2001US-0283444P.
PR
PR
     12-APR-2001; 2001US-0283512P.
PR
     13-APR-2001; 2001US-0283657P.
     13-APR-2001; 2001US-0283678P.
PR
     13-APR-2001; 2001US-0283710P.
PR
     17-APR-2001; 2001US-0284234P.
PR
PR
     19-APR-2001; 2001US-0285325P.
PR
     20-APR-2001; 2001US-0285381P.
PR
     24-APR-2001; 2001US-0286068P.
     25-APR-2001; 2001US-0286292P.
PR
PR
     07-JUN-2001; 2001US-0296692P.
PR
     26-JUN-2001; 2001US-0300883P.
     08-AUG-2001; 2001US-0311003P.
PR
     13-AUG-2001; 2001US-0311973P.
PR
PR
     16-AUG-2001; 2001US-0312901P.
PR
     14-SEP-2001; 2001US-0322283P.
₽R
     05-OCT-2001; 2001US-0327448P.
PR
     31-DEC-2001; 2001US-0345734P.
     03-JAN-2002; 2002US-0345755P.
PR
     04-FEB-2002; 2002US-0354391P.
PR
     02-APR-2002; 2002US-00114153.
PR
XX
PA
     (CURA-) CURAGEN CORP.
XX
PΙ
     Padigaru M,
                  Shenoy SG, Kekuda R, Rastelli L, Mezes PD;
PΙ
     Smithson G,
                  Guo X, Gerlach V, Casman SJ, Boldog FL,
PΙ
     Zerhusen BD, Tchernev VT, Gangolli EA, Vernet CAM, Spytek KA;
     Malyankar UM, Patturajan M, Miller CE, Taupier RJ,
PΙ
                                                            Heyes MP,
ΡI
     Peyman JA,
                Catterton E, Macdougall JR, Edinger SR,
ΡI
     Mazur A;
XX
```

```
DR
    WPI; 2003-046862/04.
DR
    P-PSDB; ABU12041.
XX
PT
    New isolated NOVX polypeptide useful for treating cardiomyopathy,
    atherosclerosis, metabolic disorders, diabetes, obesity, infectious
PT
PT
    disease, anorexia, neurodegenerative disorders, Alzheimer's disease and
PT
    cancer.
XX
PS
    Claim 3; Page 83-84; 425pp; English.
XX
CC
    This invention describes novel polypeptides, termed NOVX which have
CC
    antidiabetic, antiarteriosclerotic, anorectic, metabolic, antimicrobial,
CC
    neuroprotective, antiparkinsonian, antilipaemic, cytostatic, nootropic,
CC
    cardiant and immunomodulatory activity. The polypeptide and any
CC
    antibodies generated from it are useful in the manufacture of a
CC
    medicament for treating a syndrome associated with a human disease
CC
    selected from a pathology associated with the NOVX polypeptide. Fragments
CC
    and portions of the polynucleotides encoding NOVX polypeptides are useful
CC
    to map the location of NOVX genes on a chromosome, to identify
CC
    individuals from minute biological samples, as DNA markers for
CC
    restriction fragment length polymorphism (RFLP), and are useful to
CC
    prepare polymerase chain reaction primers. The products of the invention
CC
    can be used in gene therapy and for treating cardiomyopathy, metabolic
CC
    disorders, diabetes, atherosclerosis, obesity, infectious disease,
CC
    anorexia, neurodegenerative disorders, Alzheimer's disease, Parkinson's
CC
    disease, immune disorders, haematopoietic disorders, and various
    dyslipidaemias, metabolic disturbances associated with obesity, metabolic
CC
CC
    syndrome X and wasting disorders associated with chronic diseases and
CC
    various cancers. ABX56261-ABX56306 represent the polynucleotide fragments
CC
    which encode the NOVX polypeptides represented in ABU12041-ABU12086
XX
SQ
    Sequence 2813 BP; 617 A; 716 C; 813 G; 667 T; 0 U; 0 Other;
                       85.6%;
                              Score 2367.2; DB 7; Length 2813;
 Query Match
 Best Local Similarity
                       91.2%;
                               Pred. No. 0;
                              0; Mismatches 223; Indels
                                                                      2;
 Matches 2542; Conservative
                                                          21; Gaps
          1 ATGGCGTGGTTAAGGTTGCAGCCTCTCACCTCTGCCTTCCTCCATTTTGGGCTGGTTACC 60
Qу
            9 ATGGCGTGGTTAAGGTTGCAGCCTCTCACCTCTGCCTTCCTCCATTTTGGGCTGGTTACC 68
Db
          61 TTTGTGCTCTTCCTGAATGGTCTTCGAGCAGAGGCTGGTGGCTCAGGGGACGTGCCAAGC 120
Qу
            69 TTTGTGCTCTTCCTGAATGGTCTTCGAGCAGAGGCTGGTGGCTCAGGGGACGTGCCAAGC 128
Db
         121 ACAGGGCAGAACAATGAGTCCTGTTCAGGGTCATCGGACTGCAAGGAGGGTGTCATCCTG 180
Qy
             129 ACAGGGCAGAACAATGAGTCCTGTTCAGGGTCATCGGACTGCAAGGAGGGTGTCATCCTG 188
Db
         181 CCAATCTGGTACCCGGAGAACCCTTCCCTTGGGGACAAGATTGCCAGGGTCATTGTCTAT 240
Qу
            Db
         189 CCAATCTGGTACCCGGAGAACCCTTCCCTTGGGGACAAGATTGCCAGGGTCATTGTCTAT 248
         241 TTTGTGGCCCTGATATACATGTTCCTTGGGGTGTCCATCATTGCTGACCGCTTCATGGCA 300
Qу
             249 TTTGTGGCCCTGATATACATGTTCCTTGGGGTGTCCATCATTGCTGACCGCTTCATGGCA 308
Db
```

Qу	301	TCTATTGAAGTCATCACCTCTCAAGAGAGGGGGGGTGACAATTAAGAAACCCAATGGAGAA	360
Db	309	TCTATTGAAGTCATCACCTCTCAAGAGAGGGGAGGTGACAATTAAGAAACCCAATGGAGAA	368
Qу	361	ACCAGCACAACCACTATTCGGGTCTGGAATGAAACTGTCTCCAACCTGACCCTTATGGCC	420
Db	369	ACCAGCACAACCACTATTCGGGTCTGGAATGAAACTGTCTCCAACCTGACCCTTATGGCC	428
QУ	421	CTGGGTTCCTCTGAGATACTCCTCTCTTTAATTGAGGTGTGTGGTCATGGGTTC	480
Db	429	CTGGGTTCCTCTGAGATACTCCTCTTTAATTGAGGTGTGTGGTCATGGGTTC	488
QУ	481	ATTGCTGGTGATCTGGGACCTTCTACCATTGTAGGGAGTGCAGCCTTCAACATGTTCATC	540
Db	489	ATTGCTGGTGATCTGGGACCTTCTACCATTGTAGGGAGTGCAGCCTTCAACATGTTCATC	548
Qу	541	ATCATTGGCATCTGTGTCTACGTGATCCCAGACGGAGAGATCGCAAGATCAAGCATCTA	600
Db	549	ATCATTGGCATCTGTGTCTACGTGATCCCAGACGGAGAGACTCGCAAGATCAAGCATCTA	608
Qу	601	CGAGTCTTCTTCATCACCGCTGCTTGGAGTATCTTTGCCTACATCTGGCTCTATATGATT	660
Db	609	CGAGTCTTCTTCATCACCGCTGCTTGGAGTATCTTTGCCTACATCTGGCTCTATATGATT	668
Qу	661	CTGGCAGTCTTCTCCCCTGGTGTGGTCCAGGTTTGGGAAGGCCTCCTCACTCTCTTCTTC	720
Db	669	CTGGCAGTCTTCTCCCCTGGTGTGGTCCAGGTTTGGGAAGGCCTCCTCACTCTTCTTC	728
QУ	721	TTTCCAGTGTGTCCTTCTGGCCTGGGTGGCAGATAAACGACTGCTCTTCTACAAATAC	780
Db	729	TTTCCAGTGTGTCCTTCTGGCCTGGGTGGCAGATAAACGACTGCTCTTCTACAAATAC	788
QУ	781	ATGCACAAAAGTACCGCACAGACAAACACCGAGGAATTATCATAGAGACAGAGGGTGAC	840
Db	789	ATGCACAAAAGTACCGCACAGACAAACACCGAGGAATTATCATAGAGACAGAGGGTGAC	848
QУ	841	CACCCTAAGGGCATTGAGATGGGAAAATGATGAATTCCCATTTTCTAGATGGGAAC	900
Db	849	CACCCTAAGGGCATTGAGATGGGAAAATGATGAATTCCCATTTTCTAGATGGGAAC	908
Qу	901	CTGGTGCCCCTGGAAGGGAAGGAAGTGGATGATCCCGCAGAGAGATGATCCCGATTCTC	960
Db	909	CTGGTGCCCCTGGAAGGGAAGGAAGTGGATGATCCCGCAGAGAGATGATCCCGGATTCTC	968
QУ	961	AAGGATCTGAAGCAAAAACACCCAGAGAAGGACTTAGATCAGCTGGTGGAGATGGCCAAT	1020
Db .	969	AAGGATCTGAAGCAAAAACACCCAGAGAAGGACTTAGATCAGCTGGTGGAGATGGCCAAT	1028
QУ	1021	TACTATGCTCTTTCCCACCAACAGAAGAGCCGCGCCTTCTACCGTATCCAAGCCACTCGT	1080
Db	1029	TACTATGCTCTTTCCCACCAACAGAAGAGCCGTGCCTTCTACCGTATCCAAGCCACTCGT	1088
QУ	1081	ATGATGACTGGTGCAGGCAATATCCTGAAGAAACATGCAGCAGAACAAGCCAAGAAGGCC	1140
Db	1089	ATGATGACTGGTGCAGGCAATATCCTGAAGAAACATGCAGCAGAACAAGCCAAGAAGGCC	1148
Οv	1141	TCCAGCATGAGCGAGGTGCACACCGATGAGCCTGAGGACTTTATTTCCAAGGTCTTCTTT	1200

Db	1149	TCCAGCATGAGCGAGGTGCACACCGATGAGCCTGAGGACTTTATTTCCAAGGTCTTCTTT	1208
Qу	1201	GACCCATGTTCTTACCAGTGCCTGGAGAACTGTGGGGCTGTACTCCTGACAGTGGTGAGG	1260
Db	1209		1268
Qу	1261	AAAGGGGGAGACATGTCAAAGACCATGTATGTGGACTACAAAACAGAGGATGGTTCTGCC	1320
Db	1269		1328
Qу	1321	AATGCAGGGCTGACTATGAGTTCACAGAGGGCACGGTGGTTCTGAAGCCAGGAGAGACC	1380
Db	1329	AATGCAGGGGCTGACTATGAGTTCACAGAGGGCACGGTGGTTCTGAAGCCAGGAGAGACC	1388
Qу	1381	CAGAAGGAGTTCTCCGTGGGCATAATTGATGACGACATTTTTGAGGAGGATGAACACTTC	1440
Db	1389	CAGAAGGAGTTCTCCGTGGGCATAATTGATGACGACATTTTTTGAGGAGGATGAACACTTC	1448
Qу	1441	TTTGTAAGGTTGAGCAATGTCCGCATAGAGGAGGAGCAGCCAGAGGAGGGGGATGCCTCCA	1500
Db	1449	TTTGTAAGGTTGAGCAATGTCCGCATAGAGGAGGAGCAGCCAGAGGAGGAGGGATGCCTCCA	1508
Qу	1501	GCAATATTCAACAGTCTTCCCTTGCCTCGGGCTGTCCTAGCCTCCCCTTGTGTGGCCACA	1560
Db	1509	GCAATATTCAACAGTCTTCCCTTGCCTCGGGCTGTCCTAGCCTCCCCTTGTGTGGCCACA	1568
Qу	1561	GTTACCATCTTGGATGATGACCATGCAGGCATCTTCACTTTTGAATGTGATACTATTCAT	1620
Db	1569	GTTACCATCTTGGATGATGACCATGCAGGCATCTTCACTTTTGAATGTGATACTATTCAT	1628
Qу	1621	GTCAGTGAGAGTATTGGTGTTATGGAGGTCAAGGTTCTGCGGACATCAGGTGCCCGGGGT	1680
Db	1629	GTCAGTGAGAGTATTGGTGTTATGGAGGTCAAGGTTCTGCGGACATCAGGTGCCCGGGGT	1688
Qу	1681	ACAGTCATCGTCCCCTTTAGGACAGTAGAAGGGACAGCCAAGGGTGGCGGTGAGGACTTT	1740
Db	1689	ACAGTCATCGTCCCCTTTAGGACAGTAGAAGGGACAGCCAAGGGTGGCGGTGAGGACTTT	1748
Qу	1741	GAAGACACATATGGGGAGTTGGAATTCAAGAATGATGAAAACTGTGAAAACCATAAGGGTT	1800
Db	1749	GAAGACACATATGGGGAGTTGGAATTCAAGAATGATGAAAACTGTGAAAAACTCTTCAGGTG	1808
Qу	1801	AAAATAGTAGATGAGGAGGAATACGAAAGGCAAGAGAATTTCTTCATTGCCCTTGGTGAA	1860
Db	1809	AAGATAGTTGATGACGAGGAATATGAGAAAAAGGATAATTTCTTCATTGAGCTGGGCCAG	1868
Qу	1861	CCGAAATGGATGGAACGTGGAATATCAGATGTGACAGACAGG	1902
Db	1869	CCCCAGTGGCTTAAGCGAGGGATTTCAGCTCTGCTACTCAATCAA	1928
Qу	1903	AAGCTGACTATGGAAGAAGAGGAGGCCAAGAGGATAGCAGAGATGGGAAAGCCAGTATTG	1962
Db	1929	AAGCTAACAGCCGAGGAGGAGGAGGCTCGGAGGATAGCAGAGATGGGCAAGCCAGTTCTT	1988
Qу	1963	GGTGAACACCCCAAACTAGAAGTCATCATTGAAGAGTCCTATGAGTTCAAGACTACGGTG	2022

Db	1989	GGGGAGAACTGCCGGCTGGAGGTCATCATCGAGGAGTCATATGATTTTAAGAACACGGTG	2048
QУ	2023	GACAAACTGATCAAGAAGACAAACCTGGCCTTGGTTGTGGGGACCCATTCCTGGAGGGAC	2082
Db	2049	GATAAACTCATCAAGAAAACGAACTTGGCCTTGGTAATTGGGACCCATTCATGGAGGGAG	2108
Qу	2083	CAGTTCATGGAGGCCATCACCGTCAGTGCAGCAGGGGATGAGGATGAGGATGAATCC	2139
Db	2109	CAGTTTTTAGAGGCAATTACGGTGAGCGCAGGGGACGAGGAGGAGGAGGAGGACGGGTCC	2168
QУ	2140	GGGGAGGAGGCTGCCCTCCTGCTTTGACTACGTCATGCACTTCCTGACTGTCTTCTGG	2199
D <b>b</b>	2169	CGGGAGGAGCGCTGCCTTGTGTTTTGACTACGTGATGCACTTCCTGACGGTGTTCTGG	2228
QУ	2200	AAGGTGCTGTTTGCCTGTGTGCCCCCCACAGAGTACTGCCACGGCTGGGCCTGCTTCGCC	2259
Db	2229	AAGGTGCTCTTCGCCTGTGTGCCCCCCACCGAGTACTGCCACGGCTGGGCCTGCTTTGGT	2288
QУ	2260	GTCTCCATCCTCATCATTGGCATGCTCACCGCCATCATTGGGGACCTGGCCTCGCACTTC	2319
Db	2289	GTCTCCATCCTGGTCATCGGCCTGCTCACCGCCCTCATTGGGGACCTCGCCTCCCACTTC	2348
Qу	2320	GGCTGCACCATTGGTCTCAAAGATTCAGTCACAGCTGTTGTTTTCGTGGCATTTGGCACC	2379
Db	2349	GGCTGCACCGTTGGCCTCAAGGACTCTGTCAATGCTGTTGTCTTCGTTGCCCTGGGCACC	2408
Qу	2380	TCTGTCCCAGATACGTTTGCCAGCAAAGCTGCTGCCCTCCAGGATGTATATGCAGACGCC	2439
Db	2409	TCCATCCCTGACACGTTCGCCAGCAAGGTGGCGCGCTGCAGGACCAGTGCGCCGACGCG	2468
Qу	2440	TCCATTGGCAACGTGACGGCCAGCAACGCCGTCAATGTCTTCCTGGGCATCGGCCTGGCC	2499
Db	2469	TCCATCGGCAACGTGACCGGCTCCAACGCGGTGAACGTGTTCCTTGGCCTGGGCGTCGCC	2528
Qу	2500	TGGTCCGTGGCCGCCATCTACTGGGCTCTGCAGGGACAGGAGTTCCACGTGTCGGCCGGC	2559
Db	2529	TGGTCTGTGGCCGCCGTGTACTGGGCGGTGCAGGGCCGCCCCTTCGAGGTGCGCACTGGC	2588
Qу	2560	ACACTGGCCTTCTCCGTCACCCTCTTCACCATCTTTGCATTTGTCTGCATCAGCGTGCTC	2619
Db	2589	ACGCTGGCCTTCTCCGTCACGCTCTTCACCGTCTTCGCCTTCGTGGGCATTGCCGTGCTG	2648
Qу	2620	TTGTACCGAAGGCGGCCGCACCTGGGAGGGGAGCTTGGTGGCCCCCGTGGCTGCAAGCTC	2679
Db	2649	CTGTACCGGCCGCCCCACATCGGCGGCGGCCGGGCCCGCGCGCG	2708
Qу	2680	GCCACAACATGGCTCTTTGTGAGCCTGTGGCTCCTCTACATACTCTTTGCCACACTAGAG	2739
Db	2709	GCCACCACCGCGCTCTTCCTGGGCCTCTGGCTCCTGTACATCCTCTTCGCCAGCCTGGAG	2768
Qу	2740	GCCTATTGCTACATCAAGGGGTTCTA 2765	
Db	2769	GCGTACTGCCACATCCGGGGCTTCTA 2794	

```
ACC00414 standard; cDNA; 2534 BP.
ID
XX
AC
    ACC00414;
XX
    04-JUL-2003 (first entry)
DT
XX
    Human 69039 coding sequence.
DE
XX
KW
    Human; 69039; neuroprotective; gene therapy; haematopoietic disorder;
KW
    Na+/Ca2+ exchanger; ion transporter; neural tissue;
KW
    neurological disorder; gene; ss.
XX
OS
    Homo sapiens.
XX
FH
                    Location/Qualifiers
    Key
                    343. .2130
FT
    CDS
FT
                    /*tag= a
FT
                    /product= "Human 69039"
XX
PN
    WO2003029410-A2.
XX
    10-APR-2003.
PD
XX
    27-SEP-2002; 2002WO-US030817.
PF
XX
PR
    28-SEP-2001; 2001US-0325737P.
XX
PA
     (MILL-) MILLENIUM PHARM INC.
XX
PΙ
    Carroll JM;
XX
DR
    WPI; 2003-381617/36.
DR
    P-PSDB; ABR40134.
XX
PT
    Identifying a nucleic acid molecule associated with a disorder for
PT
    preparing a composition for treating hematopoietic or neurological
    disorder by detecting the presence of a nucleic acid molecule in the
PT
PT
    sample that is amplified.
XX
PS
    Claim 1; Page 109-110; 133pp; English.
XX
CC
    The present sequence is the coding sequence for human 69039, a novel
CC
    Na+/Ca2+ exchanger family member (ion transporter). 69039 was shown to be
CC
    expressed in human haematopoietic cells, e.g. CD34-expressing progenitor
    cells as well as in neural tissues, e.g. brain cortex and hypothalamus.
CC
CC
    69039 may therefore be used for preparing a composition for treating
CC
    haematopoietic or neurological disorder
XX
SO
    Sequence 2534 BP; 602 A; 595 C; 644 G; 693 T; 0 U; 0 Other;
                         64.6%; Score 1786.4; DB 7; Length 2534;
 Query Match
 Best Local Similarity
                         99.9%; Pred. No. 0;
 Matches 1787; Conservative
                                0; Mismatches
                                                  1; Indels
                                                               0; Gaps
                                                                           0;
           1 ATGGCGTGGTTAAGGTTGCAGCCTCTCACCTCTGCCTTCCTCCATTTTGGGCTGGTTACC 60
Qу
             Db
         343 ATGGCGTGGTTAAGGTTGCAGCCTCTCACCTCTGCCTTCCTCCATTTTGGGCTGGTTACC 402
```

Qу	61	TTTGTGCTCTTCCTGAATGGTCTTCGAGCAGAGGCTGGTGGCTCAGGGGACGTGCCAAGC	120
Db	403	TTTGTGCTCTTCCTGAATGGTCTTCGAGCAGAGGCTGGTGGCTCAGGGGACGTGCCAAGC	462
Qy	121	ACAGGGCAGAACAATGAGTCCTGTTCAGGGTCATCGGACTGCAAGGAGGGTGTCATCCTG	180
Db	463	ACAGGGCAGAACAATGAGTCCTGTTCAGGGTCATCGGACTGCAAGGAGGGTGTCATCCTG	522
Qy	181	CCAATCTGGTACCCGGAGAACCCTTCCCTTGGGGACAAGATTGCCAGGGTCATTGTCTAT	240
Db	523		582
Qy	241	TTTGTGGCCCTGATATACATGTTCCTTGGGGTGTCCATCATTGCTGACCGCTTCATGGCA	300
Db	583	TTTGTGGCCCTGATATACATGTTCCTTGGGGTGTCCATCATTGCTGACCGCTTCATGGCA	642
Qу	301	TCTATTGAAGTCATCACCTCTCAAGAGAGGGAGGTGACAATTAAGAAACCCAATGGAGAA	360
Db	643	TCTATTGAAGTCATCACCTCTCAAGAGAGGGAGGTGACAATTAAGAAACCCAATGGAGAA	702
Qу	361	ACCAGCACAACCACTATTCGGGTCTGGAATGAAACTGTCTCCAACCTGACCCTTATGGCC	420
Db	703	ACCAGCACAACCACTATTCGGGTCTGGAATGAAACTGTCTCCAACCTGACCCTTATGGCC	762
Qу	421	CTGGGTTCCTCTGAGATACTCCTCTCTTTAATTGAGGTGTGTGGTCATGGGTTC	480
Db	763	CTGGGTTCCTCTGAGATACTCCTCTTTAATTGAGGTGTGTGGTCATGGGTTC	822
Qу	481	ATTGCTGGTGATCTGGGACCTTCTACCATTGTAGGGAGTGCAGCCTTCAACATGTTCATC	540
Db	823	ATTGCTGGTGATCTGGGGACCTTCTACCATTGTAGGGAGTGCAGCCTTCAACATGTTCATC	882
Qу	541	ATCATTGGCATCTGTCTACGTGATCCCAGACGGAGAGACTCGCAAGATCAAGCATCTA	600
Db	883	ATCATTGGCATCTGTGTCTACGTGATCCCAGACGGAGAGACTCGCAAGATCAAGCATCTA	942
QУ	601	CGAGTCTTCTTCATCACCGCTGCTTGGAGTATCTTTGCCTACATCTGGCTCTATATGATT	660
Db	943	CGAGTCTTCTTCATCACCGCTGCTTGGAGTATCTTTGCCTACATCTGGCTCTATATGATT	1002
Qу	661	CTGGCAGTCTTCTCCCCTGGTGTGGTCCAGGTTTGGGAAGGCCTCCTCACTCTCTTCTTC	720
Db	1003	CTGGCAGTCTTCTCCCCTGGTGTGGTCCAGGTTTGGGAAGGCCTCCTCACTCTTCTTC	1062
QУ	721	TTTCCAGTGTGTCCTTCTGGCCTGGGTGGCAGATAAACGACTGCTCTTCTACAAATAC	780
Db	1063	TTTCCAGTGTGTCCTTCTGGCCTGGGTGGCAGATAAACGACTGCTCTTCTACAAATAC	1122
Qу	781	ATGCACAAAAGTACCGCACAGACAAACACCGAGGAATTATCATAGAGACAGAGGGTGAC	840
Db	1123	ATGCACAAAAAGTACCGCACAGACAAACACCGAGGAATTATCATAGAGACAGAGGGTGAC	1182
Qу	841	CACCCTAAGGGCATTGAGATGGATGGGAAAATGATGAATTCCCATTTTCTAGATGGGAAC	900
Db	1183	CACCCTAAGGGCATTGAGATGGATGGGAAAATGATGAATTCCCATTTTCTAGATGGGAAC	1242

	Qy		CTGGTGCCCCTGGAAGGGAAGGAAGTGGATGATCCCGCAGAGAGATGATCCGGATTCTC	
	Db		CTGGTGCCCCTGGAAGGGAAGGAAGTGGATGAGTCCCGCAGAGAGATGATCCGGATTCTC	
	QУ	961	AAGGATCTGAAGCAAAAACACCCAGAGAAGGACTTAGATCAGCTGGTGGAGATGGCCAAT	1020
	Db	1303	AAGGATCTGAAGCAAAAACACCCAGAGAAGGACTTAGATCAGCTGGTGGAGATGGCCAAT	1362
	Qу	1021	TACTATGCTCTTTCCCACCAACAGAAGAGCCGCGCCTTCTACCGTATCCAAGCCACTCGT	1080
	Db	1363	TACTATGCTCTTTCCCACCAACAGAAGAGCCGCGCCTTCTACCGTATCCAAGCCACTCGT	1422
	Qy	1081	ATGATGACTGGTGCAGGCAATATCCTGAAGAAACATGCAGCAGAACAAGCCAAGAAGGCC	1140
	Db	1423		1482
	Qу	1141	${\tt TCCAGCATGAGCGAGGTGCACACCGATGAGCCTGAGGACTTTATTTCCAAGGTCTTCTTT}$	1200
	Db	1483	TCCAGCATGAGCGAGGTGCACACCGATGAGCCTGAGGACTTTATTTCCAAGGTCTTCTTT	1542
	Qу	1201	GACCCATGTTCTTACCAGTGCCTGGAGAACTGTGGGGGCTGTACTCCTGACAGTGGTGAGG	1260
	Db	1543		1602
	Qу	1261	AAAGGGGGAGACATGTCAAAGACCATGTATGTGGACTACAAAACAGAGGATGGTTCTGCC	1320
	Db	1603	AAAGGGGGAGACATGTCAAAGACCATGTATGTGGACTACAAAACAGAGGATGGTTCTGCC	1662
	Qу	1321	AATGCAGGGGCTGACTATGAGTTCACAGAGGGCACGGTGGTTCTGAAGCCAGGAGAGACC	1380
	Db	1663	AATGCAGGGGCTGACTATGAGTTCACAGAGGGCACGGTGGTTCTGAAGCCAGGAGAGACC	1722
	Qу	1381	CAGAAGGAGTTCTCCGTGGGCATAATTGATGACGACATTTTTGAGGAGGATGAACACTTC	1440
	Db	1723	CAGAAGGAGTTCTCCGTGGGCATAATTGATGACGACATTTTTGAGGAGGATGAACACTTC	1782
	Qу	1441	TTTGTAAGGTTGAGCAATGTCCGCATAGAGGAGGAGCAGCCAGAGGAGGAGGATGCCTCCA	1500
	Db	1783	TTTGTAAGGTTGAGCAATGTCCGCATAGAGGAGGAGCAGCCAGAGGAGGAGGAGCCTCCA	1842
	Qу	1501	GCAATATTCAACAGTCTTCCCTTGCCTCGGGCTGTCCTAGCCTCCCCTTGTGTGGCCACA	1560
	Db	1843		1902
	Qу	1561	GTTACCATCTTGGATGATGACCATGCAGGCATCTTCACTTTTGAATGTGATACTATTCAT	1620
	Db	1903		1962
	Qу	1621	GTCAGTGAGAGTATTGGTGTTATGGAGGTCAAGGTTCTGCGGACATCAGGTGCCCGGGGT	1680
	Db	1963		2022
	Qу		${\tt ACAGTCATCGTCCCCTTTAGGACAGTAGAAGGGACAGCCAAGGGTGGCGGTGAGGACTTT}$	1740
•	Db			2082
	Qу	1741	GAAGACACATATGGGGAGTTGGAATTCAAGAATGATGAAAACTGTGAAA 1788	

FT

variation

```
RESULT 13
ABN83429
     ABN83429 standard; DNA; 126512 BP.
XX
AC
     ABN83429;
XX
DΤ
     21-AUG-2002 (first entry)
XX
DE
     Human transporter protein gene.
XX
KW
     Human; sodium/calcium exchanger; transporter; brain; heart; kidney; lung;
KW
     spleen; testis; leukocyte; foetal brain; chromosome 14; gene;
KW
     single nucleotide polymorphism; SNP; ds.
XX
OS
     Homo sapiens.
XX
FH
                      Location/Qualifiers
     Key
FΤ
                      replace(378,T)
     variation
FT
                      /*tag= a
FT
                      /standard name= "Single nucleotide polymorphism"
                      replace (7\overline{4}1...742,C-)
FT
     variation
                      /*tag= b
FT
FT
                      /standard name= "Single nucleotide polymorphism"
FT
                      /note= "This variation is an indel"
FT
     variation
                      replace(2002,T)
FT
                      /*tag= c
FT
                      /standard name= "Single nucleotide polymorphism"
FT
     CDS
                      2010. .12\overline{4}505
FT
                      /*tag= d
FT
                      /product= "Human transporter"
                      /note= "Contains 5 introns"
FT
FT
                      2010. .3793
     exon
FT
                      /*tag= e
FT
                      /number= 1
FT
     variation
                      replace(2381,C)
FT
                      /*tag= f
FT
                      /standard name= "Single nucleotide polymorphism"
                      3794. .10\overline{9}509
FT
     intron
FT
                      /*tag= g
                      /number= 1
FT
FT
                      replace (5165,T)
     variation
FT
                      /*tag= h
                      /standard name= "Single nucleotide polymorphism"
FT
FT
     variation
                      replace (5402,G)
FT
                      /*tag= i
FT
                      /standard name= "Single nucleotide polymorphism"
FT
     variation
                      replace(6794,C)
FT
                      /*tag= j
                      /standard name= "Single nucleotide polymorphism"
FT
FT
     variation
                      replace(9883,G)
FT
                      /*tag= k
                      /standard name= "Single nucleotide polymorphism"
FT
```

replace(10210,C)

```
FT
                     /standard name= "Single nucleotide polymorphism"
FT
FT
     variation
                     replace(12220,G)
FT
                     /*tag= m
FT
                     /standard name= "Single nucleotide polymorphism"
     variation
                     replace(13842,G)
FT
                     /*tag= n
FT
                     /standard name= "Single nucleotide polymorphism"
FT
FT
     variation
                     replace(14200,A)
FT
                     /*tag= o
FT
                     /standard name= "Single nucleotide polymorphism"
                     replace(15878,T)
FT
     variation
FT
                     /*tag= p
                     /standard name= "Single nucleotide polymorphism"
FT
FT
     variation
                     replace(16030,G)
FT
                     /*tag= q
                     /standard name= "Single nucleotide polymorphism"
FT
FT
     variation
                     replace(16292,C)
FT
                     /*tag= r
                     /standard name= "Single nucleotide polymorphism"
FT
     variation
                     replace(16506,G)
FT
FT
                     /*tag= s
                     /standard name= "Single nucleotide polymorphism"
FT
FT
     variation
                     replace(17953,A)
FT
                     /*tag=
                     /standard name= "Single nucleotide polymorphism"
FT
FT
     variation
                     replace(23832,G)
FT
                     /*tag= u
                     /standard name= "Single nucleotide polymorphism"
FT
FT
                     replace (25001, A)
     variation
                     /*tag= v
FT
                     /standard name= "Single nucleotide polymorphism"
FT
FT
     variation
                     replace(25141,G)
FT
                     /*tag= w
FT
                     /standard name= "Single nucleotide polymorphism"
FT
     variation
                     replace(25191,G)
FT
                     /*tag= x
                     /standard name= "Single nucleotide polymorphism"
FT
FΤ
     variation
                     replace (26147, A)
FT
                     /*tag=
                     /standard name= "Single nucleotide polymorphism"
FT
FT
                     replace(27400,G)
     variation
FT
                     /*tag= z
                     /standard name= "Single nucleotide polymorphism"
FT
FT
                     replace(27401,T)
     variation
\mathbf{FT}
                     /*tag= aa
                     /standard name= "Single nucleotide polymorphism"
FT
FT
     variation
                     replace(29278,C)
FT
                      /*tag= ab
FT
                     /standard name= "Single nucleotide polymorphism"
FT
     variation
                     replace(31437,G)
FT
                     /*tag= ac
                     /standard name= "Single nucleotide polymorphism"
\mathbf{FT}
FT
                     replace (31857, G)
     variation
FT
                      /*tag= ad
                     /standard name= "Single nucleotide polymorphism"
FT
                     replace(33155,A)
FT
     variation
```

```
FT
                      /standard name= "Single nucleotide polymorphism"
FT
FT
     variation
                      replace(39487,C)
FT
                      /*tag= af
                      /standard name= "Single nucleotide polymorphism"
FT
FT
     variation
                      replace(41449,C)
FT
                      /*tag= ag
FT
                      /standard name= "Single nucleotide polymorphism"
FT
                      replace(42420,C)
     variation
FT
                      /*tag= ah
FT
                      /standard name= "Single nucleotide polymorphism"
FT
     variation
                      replace(43256,C)
FT
                      /*tag= ai
\mathbf{F}\mathbf{T}
                      /standard name= "Single nucleotide polymorphism"
\mathbf{FT}
                      replace (4\overline{3}967, C)
     variation
                      /*tag= aj
FT
                      /standard name= "Single nucleotide polymorphism"
FT
FT
     variation
                      replace(48603. .48604,A-)
FT
                      /*tag= ak
                      /standard name= "Single nucleotide polymorphism"
FT
                      /note= "This variation is an indel"
FT
FT
     variation
                      replace(49560,T)
                      /*tag= al
\mathbf{FT}
                      /standard name= "Single nucleotide polymorphism"
FT
FT
     variation
                      replace(52729,G)
FT
                      /*tag= am
                      /standard name= "Single nucleotide polymorphism"
FT
                      replace (55031,G)
FT
     variation
                      /*tag= an
FT
                      /standard name= "Single nucleotide polymorphism"
FT
FT
     variation
                      replace (55066, C)
                      /*tag= ao
FT
FT
                      /standard name= "Single nucleotide polymorphism"
FT
                      replace (56912, G)
     variation
                      /*tag= ap
FT
                      /standard name= "Single nucleotide polymorphism"
FT
     variation
                      replace (58480,T)
FT
FT
                      /*tag= aq
                      /standard name= "Single nucleotide polymorphism"
FT
FT
     variation
                      replace(61128,A)
FT
                      /*tag= ar
FT
                      /standard name= "Single nucleotide polymorphism"
                      replace (61320, A)
FT
     variation
FT
                      /*tag= as
                      /standard name= "Single nucleotide polymorphism"
FT
FT
     variation
                      replace(61444,C)
                      /*tag= at
FT
                      /standard name= "Single nucleotide polymorphism"
FT
                      replace(62641,C)
FT
     variation
FT
                      /*taq= au
                      /standard name= "Single nucleotide polymorphism"
FT
FT
     variation
                      replace(63023,G)
                      /*tag= av
FT
                      /standard name= "Single nucleotide polymorphism"
FT
                      replace(63051,C)
FT
     variation
                      /*tag= aw
FT
                      /standard_name= "Single nucleotide polymorphism"
FT
```

```
variation
                   replace(64989,G)
FT
                   /*tag= ax
FT
                   /standard name= "Single nucleotide polymorphism"
FT
FT
    variation
                   replace(65929,A)
FT
                   /*tag= ay
                   /standard name= "Single nucleotide polymorphism"
FT
FT
    variation
                   replace(66694,G)
FT
                   /*tag= az
                   /standard name= "Single nucleotide polymorphism"
FT
FT
    variation
                   replace(66755,A)
FT
                   /*tag= ba
\mathbf{FT}
                   /standard name= "Single nucleotide polymorphism"
FT
                   replace(66879,C)
    variation
FT
                   /*tag= bb
FT
                   /standard name= "Single nucleotide polymorphism"
FT
                   replace (6\overline{9}156, T)
    variation
                   /*tag= bc
FΤ
FT
                   /standard name= "Single nucleotide polymorphism"
FT
                   replace(69280,T)
    variation
                   /*tag= bd
FT
FT
                   /standard name= "Single nucleotide polymorphism"
FT
    variation
                   replace(70647,T)
                   /*tag= be
FT
                   /standard name= "Single nucleotide polymorphism"
FT
FT
    variation
                   replace(71867,T)
FΤ
                   /*tag= bf
                   /standard name= "Single nucleotide polymorphism"
FT
                   replace(71900,T)
FT
    variation
FT
                   /*tag= bg
FT
                   /standard name= "Single nucleotide polymorphism"
FT
    variation
                   replace(71901,A)
                   /*tag= bh
FT
FT
                   /standard name= "Single nucleotide polymorphism"
FT
                   replace (7\overline{2}369,T)
    variation
FT
                   /*tag= bi
 Query Match
                        64.5%; Score 1784.8; DB 6; Length 126512;
 Best Local Similarity
                       99.9%; Pred. No. 0;
 Matches 1786; Conservative
                              0; Mismatches
                                                  Indels
                                                           0; Gaps
                                                                      0;
                                               2;
           1 ATGGCGTGGTTAAGGTTGCAGCCTCTCACCTCTGCCTTCCTCCATTTTGGGCTGGTTACC 60
Qy
             2010 ATGGCGTGGTTAAGGTTGCAGCCTCTCACCTCTGCCTTCCTCCATTTTGGGCTGGTTACC 2069
Db
          61 TTTGTGCTCTTCCTGAATGGTCTTCGAGCAGAGGCTGGTGGCTCAGGGGACGTGCCAAGC 120
Qу
             2070 TTTGTGCTCTTCCTGAATGGTCTTCGAGCAGAGGCTGGTGGCTCAGGGGACGTGCCAAGC 2129
Db
         121 ACAGGGCAGAACAATGAGTCCTGTTCAGGGTCATCGGACTGCAAGGAGGGTGTCATCCTG 180
Qу
             Db
        2130 ACAGGGCAGAACAATGAGTCCTGTTCAGGGTCATCGGACTGCAAGGAGGGTGTCATCCTG 2189
         181 CCAATCTGGTACCCGGAGAACCCTTCCCTTGGGGACAAGATTGCCAGGGTCATTGTCTAT 240
Qу
             Db
        2190 CCAATCTGGTACCCGGAGAACCCTTCCCTTGGGGACAAGATTGCCAGGGTCATTGTCTAT 2249
         241 TTTGTGGCCCTGATATACATGTTCCTTGGGGTGTCCATCATTGCTGACCGCTTCATGGCA 300
Qу
```

Db	2250	TTTGTGGCCCTGATATACATGTTCCTTGGGGTGTCCATCATTGCTGACCGCTTCATGGCA	2309
Qу		TCTATTGAAGTCATCACCTCTCAAGAGAGGGAGGTGACAATTAAGAAACCCAATGGAGAA	
Db	2310	TCTATTGAAGTCATCACCTCTCAAGAGAGGGGGGGGTGACAATTAAGAAACCCAATGGAGAA	2369
Qу	361	ACCAGCACACCACTATTCGGGTCTGGAATGAAACTGTCTCCAACCTGACCCTTATGGCC	420
Db	2370	ACCAGCACAACAACTATTCGGGTCTGGAATGAAACTGTCTCCAACCTGACCCTTATGGCC	2429
Qу	421	CTGGGTTCCTCTGAGATACTCCTCTCTTTAATTGAGGTGTGTGGTCATGGGTTC	480
Db	2430	$\tt CTGGGTTCCTCTGAGATACTCCTCTTTAATTGAGGTGTGTGGTCATGGGTTC$	2489
Qу	481	${\tt ATTGCTGGTGATCTGGGGACCTTCTACCATTGTAGGGAGTGCAGCCTTCAACATGTTCATC}$	540
Db	2490		2549
Qу	541	ATCATTGGCATCTGTGTCTACGTGATCCCAGACGGAGAGACTCGCAAGATCAAGCATCTA	600
Db	2550		2609
Qу	601	CGAGTCTTCTTCATCACCGCTGCTTGGAGTATCTTTGCCTACATCTGGCTCTATATGATT	660
Db	2610	CGAGTCTTCTCATCACCGCTGCTTGGAGTATCTTTGCCTACATCTGGCTCTATATGATT	2669
Qу	661	CTGGCAGTCTTCTCCCCTGGTGTGGTCCAGGTTTGGGAAGGCCTCCTCACTCTTCTTC	720
Db	2670		2729
Qу	721	TTTCCAGTGTGTCCTTCTGGCCTGGGTGGCAGATAAACGACTGCTCTTCTACAAATAC	780
Db	2730	TTTCCAGTGTGTCCTTCTGGCCTGGGTGGCAGATAAACGACTGCTCTTCTACAAATAC	2789
Qу	781	ATGCACAAAAGTACCGCACAGACAACACCGAGGAATTATCATAGAGACAGAGGGTGAC	840
Db	2790	ATGCACAAAAGTACCGCACAGACAAACACCGAGGAATTATCATAGAGACAGAGGGTGAC	2849
Qу	841	CACCCTAAGGGCATTGAGATGGGAAAATGATGAATTCCCATTTTCTAGATGGGAAC	900
Db	2850		2909
Qу	901	CTGGTGCCCCTGGAAGGGAAGGAAGTGGATGAGTCCCGCAGAGAGATGATCCGGATTCTC	960
Db	2910	CTGGTGCCCCTGGAAGGGAAGGAAGTGGATGAGTCCCGCAGAGAGATGATCCGGATTCTC	2969
Qу	961	AAGGATCTGAAGCAAAAACACCCAGAGAAGGACTTAGATCAGCTGGTGGAGATGGCCAAT	1020
Db	2970		3029
Qу	1021	TACTATGCTCTTTCCCACCAACAGAAGAGCCGCGCCTTCTACCGTATCCAAGCCACTCGT	1080
Db	3030	TACTATGCTCTTTCCCACCAACAGAAGAGCCGCGCCTTCTACCGTATCCAAGCCACTCGT	3089
Qy	1081	ATGATGACTGGTGCAGGCAATATCCTGAAGAAACATGCAGCAGAACAAGCCAAGAAGGCC	1140

```
3090 ATGATGACTGGTGCAGGCAATATCCTGAAGAAACATGCAGCAGAACAAGCCAAGAAGGCC 3149
Db
      1141 TCCAGCATGAGCGAGGTGCACACCGATGAGCCTGAGGACTTTATTTCCAAGGTCTTCTTT 1200-
Qy
          3150 TCCAGCATGAGCGAGGTGCACACCGATGAGCCTGAGGACTTTATTTCCAAGGTCTTCTTT 3209
Db
      1201 GACCCATGTTCTTACCAGTGCCTGGAGAACTGTGGGGCTGTACTCCTGACAGTGGTGAGG 1260
Qу
          3210 GACCCATGTTCTTACCAGTGCCTGGAGAACTGTGGGGCTGTACTCCTGACAGTGGTGAGG 3269
Db
      1261 AAAGGGGGAGACATGTCAAAGACCATGTATGTGGACTACAAAACAGAGGATGGTTCTGCC 1320
Qу
          3270 AAAGGGGGAGACATGTCAAAGACCATGTATGTGGACTACAAAACAGAGGATGGTTCTGCC 3329
Db
      1321 AATGCAGGGGCTGACTATGAGTTCACAGAGGGCACGGTGGTTCTGAAGCCAGGAGAGACC 1380
Qy
          3330 AATGCAGGGGCTGACTATGAGTTCACAGAGGGCACGGTGGTTCTGAAGCCAGGAGAGACC 3389
Db
      1381 CAGAAGGAGTTCTCCGTGGGCATAATTGATGACGACATTTTTGAGGAGGATGAACACTTC 1440
Qу
          3390 CAGAAGGAGTTCTCCGTGGGCATAATTGATGACGACATTTTTGAGGAGGATGAACACTTC 3449
Db
      1441 TTTGTAAGGTTGAGCAATGTCCGCATAGAGGAGGAGCAGCCAGAGGAGGGGGATGCCTCCA 1500
Qу
          3450 TTTGTAAGGTTGAGCAATGTCCGCATAGAGGAGGAGCAGCCAGAGGAGGGGGATGCCTCCA 3509
Db
      1501 GCAATATTCAACAGTCTTCCCTTGCCTCGGGCTGTCCTAGCCTCCCCTTGTGTGGCCACA 1560
Qy
          3510 GCAATATTCAACAGTCTTCCCTTGCCTCGGGCTGTCCTAGCCTCCCCTTGTGTGGCCACA 3569
Db
      1561 GTTACCATCTTGGATGATGACCATGCAGGCATCTTCACTTTTGAATGTGATACTATTCAT 1620
Qу
          3570 GTTACCATCTTGGATGATGACCATGCAGGCATCTTCACTTTTGAATGTGATACTATTCAT 3629
Db
      1621 GTCAGTGAGAGTATTGGTGTTATGGAGGTCAAGGTTCTGCGGACATCAGGTGCCCGGGGT 1680
Qу
          3630 GTCAGTGAGAGTATTGGTGTTATGGAGGTCAAGGTTCTGCGGACATCAGGTGCCCGGGGT 3689
Db
      1681 ACAGTCATCGTCCCCTTTAGGACAGTAGAAGGGACAGCCAAGGGTGGCGGTGAGGACTTT 1740
Qу
          3690 ACAGTCATCGTCCCCTTTAGGACAGTAGAAGGGACAGCCAAGGGTGGCGGTGAGGACTTT 3749
Db
      1741 GAAGACACATATGGGGAGTTGGAATTCAAGAATGATGAAACTGTGAAA 1788
Qу
          3750 GAAGACACATATGGGGAGTTGGAATTCAAGAATGATGAAACTGTGTAA 3797
Db
```

```
ABQ78862
ID ABQ78862 standard; cDNA; 1863 BP.
XX
AC ABQ78862;
XX
DT 09-OCT-2002 (first entry)
XX
```

RESULT 14

DE Human ion exchanger protein #2 cDNA.

```
Human; ion exchanger protein; NHIEP; nootropic; cytostatic; gene therapy;
KW
    antiarthritic; virucide; chemotherapeutic; cancer; arthritis; antiviral;
KW
KW
    gene; ss; chromosome 14.
XX
os
    Homo sapiens.
XX
                    Location/Oualifiers
FH
    Key
\Gamma T
    CDS
                    1. .1863
                    /*tag= a
FT
FT
                    /product= "Ion exchanger protein 2"
XX
PN
    WO200259316-A2.
XX
    01-AUG-2002.
PD
XX
    22-JAN-2002; 2002WO-US001817.
PF
XX
    23-JAN-2001; 2001US-0263384P.
PR
XX
    (LEXI-) LEXICON GENETICS INC.
PΑ
XX
PΙ
    Friddle CJ, Hilbun E;
XX
DR
    WPI; 2002-599791/64.
    P-PSDB; ABB81914.
DR
XX
    Novel polynucleotides encoding human ion exchanger proteins that are
PT
     structurally related to mammalian sodium-calcium exchanger proteins,
PT
    useful for drug screening, diagnosis and in gene therapy of biological
PT
PT
    disorders.
XX
PS
    Disclosure; Page 39-40; 42pp; English:
XX
    The invention relates to a novel human ion exchanger protein (NHIEP),
CC
    that shares structural similarity with mammalian sodium-calcium exchanger
CC
CC
    proteins, and potassium dependent versions of the same. The NHIEP of the
CC
    invention has nootropic, cytostatic, antiarthritic, and virucide
     activity. The polynucleotide may have a use in gene therapy. NHIEPs can
CC
    be targeted by drugs, oligos, antibodies etc., in order to treat disease
CC
CC
     or to therapeutically augment the efficacy of chemotherapeutic agents
CC
    used in the treatment of cancer, arthritis, or as antiviral agents. The
     sequence encodes a NHIEP of the invention
CC
XX
     Sequence 1863 BP; 464 A; 426 C; 514 G; 459 T; 0 U; 0 Other;
SO
                         64.5%; Score 1784.6; DB 6; Length 1863;
  Query Match
                         98.5%; Pred. No. 0;
  Best Local Similarity
  Matches 1813; Conservative
                                                24: Indels
                                                                          1;
                               0: Mismatches
                                                                  Gaps
           1 ATGGCGTGGTTAAGGTTGCAGCCTCTCACCTCTGCCTTCCTCCATTTTGGGCTGGTTACC 60
Qy
             1 ATGGCGTGGTTAAGGTTGCAGCCTCTCACCTCTGCCTTCCTCCATTTTGGGCTGGTTACC 60
Db
           61 TTTGTGCTCTTCCTGAATGGTCTTCGAGCAGAGGCTGGTGGCTCAGGGGACGTGCCAAGC 120
Qу
              61 TTTGTGCTCTTCCTGAATGGTCTTCGAGCAGAGGCTGGTGGCTCAGGGGACGTGCCAAGC 120
Db
```

Qу	121	ACAGGGCAGAACAATGAGTCCTGTTCAGGGTCATCGGACTGCAAGGAGGGTGTCATCCTG	180
Db	121		180
Qу	181	CCAATCTGGTACCCGGAGAACCCTTCCCTTGGGGACAAGATTGCCAGGGTCATTGTCTAT	240
Db	181	CCAATCTGGTACCCGGAGAACCCTTCCCTTGGGGACAAGATTGCCAGGGTCATTGTCTAT	240
Qу	241	TTTGTGGCCCTGATATACATGTTCCTTGGGGTGTCCATCATTGCTGACCGCTTCATGGCA	300
Db	241	TTTGTGGCCCTGATATACATGTTCCTTGGGGTGTCCATCATTGCTGACCGCTTCATGGCA	300
Qу		TCTATTGAAGTCATCACCTCTCAAGAGAGGGGGGGGGACAATTAAGAAACCCAATGGAGAA	360
Db		TCTATTGAAGTCATCACCTCTCAAGAGAGGGGAGGTGACAATTAAGAAACCCAATGGAGAA	360
Qу	361	ACCAGCACAACCACTATTCGGGTCTGGAATGAAACTGTCTCCAACCTGACCCTTATGGCC	420
Db	361	ACCAGCACAACCACTATTCGGGTCTGGAATGAAACTGTCTCCAACCTGACCCTTATGGCC	420
Qу	421	CTGGGTTCCTCTGAGATACTCCTCTTTAATTGAGGTGTGTGT	480
Db	421	CTGGGTTCCTCTGAGATACTCCTCTTTAATTGAGGTGTGTGGTCATGGGTTC	480
Qу	481	ATTGCTGGTGATCTGGGACCTTCTACCATTGTAGGGAGTGCAGCCTTCAACATGTTCATC	540
Db	481	ATTGCTGGTGATCTGGGACCTTCTACCATTGTAGGGAGTGCAGCCTTCAACATGTTCATC	540
Qу	541	ATCATTGGCATCTGTGTCTACGTGATCCCAGACGGAGAGACTCGCAAGATCAAGCATCTA	600
Db	541	ATCATTGGCATCTGTGTCTACGTGATCCCAGACGGAGAGACTCGCAAGATCAAGCATCTA	600
Qу	601	CGAGTCTTCTTCATCACCGCTGCTTGGAGTATCTTTGCCTACATCTGGCTCTATATGATT	660
Db	601	CGAGTCTTCTTCATCACCGCTGCTTGGAGTATCTTTGCCTACATCTGGCTCTATATGATT	660
Qy	661	CTGGCAGTCTTCTCCCCTGGTGTGGTCCAGGTTTGGGAAGGCCTCCTCACTCTTCTTC	720
Db	661	CTGGCAGTCTTCTCCCCTGGTGTGGTCCAGGTTTGGGAAGGCCTCCTCACTCTTCTTC	720
Qу	721	TTTCCAGTGTGTGTCCTTCTGGCCTGGGTGGCAGATAAACGACTGCTCTTCTACAAATAC	780
Db	721	TTTCCAGTGTGTCCTTCTGGCCTGGGTGGCAGATAAACGACTGCTCTTCTACAAATAC	780
Qу	781	ATGCACAAAAAGTACCGCACAGACAAACACCGAGGAATTATCATAGAGACAGAGGGTGAC	840
Db	781	ATGCACAAAAAGTACCGCACAGACAAACACCGAGGAATTATCATAGAGACAGAGGGTGAC	840
Qу	841	CACCCTAAGGGCATTGAGATGGATGGGAAAATGATGAATTCCCATTTTCTAGATGGGAAC	900
Db	841	CACCCTAAGGGCATTGAGATGGGAAAATGATGAATTCCCATTTTCTAGATGGGAAC	900
Qy	901	CTGGTGCCCCTGGAAGGGAAGGAAGTGGATGAGTCCCGCAGAGAGATGATCCGGATTCTC	960
Db	901	CTGGTGCCCCTGGAAGGAAGGAAGTGATGATCCCGCAGAGAGATGATCCCGATTCTC	960
Qу	961	${\tt AAGGATCTGAAGCAAAAACACCCAGAGAAGGACTTAGATCAGCTGGTGGAGATGGCCAAT}$	1020

Db	961	AAGGATCTGAAGCAAAAACACCCAGAGAAGGACTTAGATCAGCTGGTGGAGATGGCCAAT	1020
Qy	1021	TACTATGCTCTTTCCCACCAACAGAAGAGCCGCGCCTTCTACCGTATCCAAGCCACTCGT	1080
Db	1021	TACTATGCTCTTTCCCACCAACAGAAGAGCCGCGCCTTCTACCGTATCCAAGCCACTCGT	1080
Qy	1081	ATGATGACTGGTGCAGGCAATATCCTGAAGAACATGCAGCAGAACAAGCCAAGAAGGCC	1140
Db	1081	ATGATGACTGGTGCAGGCAATATCCTGAAGAAACATGCAGCAGAACAAGCCAAGAAGGCC	1140
Qу	1141	TCCAGCATGAGCGAGGTGCACACCGATGAGCCTGAGGACTTTATTTCCAAGGTCTTCTTT	1200
Db	1141	${\tt TCCAGCATGAGCGAGGTGCACACCGATGAGCCTGAGGACTTTATTTCCAAGGTCTTCTTT}$	1200
Qy	1201	GACCCATGTTCTTACCAGTGCCTGGAGAACTGTGGGGGCTGTACTCCTGACAGTGGTGAGG	1260
Db	1201	GACCCATGTTCTTACCAGTGCCTGGAGAACTGTGGGGGCTGTACTCCTGACAGTGGTGAGG	1260
Qу	1261	AAAGGGGGAGACATGTCAAAGACCATGTATGTGGACTACAAAACAGAGGATGGTTCTGCC	1320
Db	1261	AAAGGGGGAGACATGTCAAAGACCATGTATGTGGACTACAAAACAGAGGATGGTTCTGCC	1320
Qу	1321	AATGCAGGGCTGACTATGAGTTCACAGAGGGCACGGTGGTTCTGAAGCCAGGAGAGACC	1380
Db	1321	AATGCAGGGGCTGACTATGAGTTCACAGAGGGCACGGTGGTTCTGAAGCCAGGAGAGACC	1380
Qу	1381	CAGAAGGAGTTCTCCGTGGGCATAATTGATGACGACATTTTTGAGGAGGATGAACACTTC	1440
Db	1381	CAGAAGGAGTTCTCCGTGGGCATAATTGATGACGACATTTTTGAGGAGGATGAACACTTC	1440
Qу	1441	TTTGTAAGGTTGAGCAATGTCCGCATAGAGGAGGAGCAGCCAGAGGAGGGGATGCCTCCA	1500
Db	1441	TTTGTAAGGTTGAGCAATGTCCGCATAGAGGAGGAGCAGCCAGAGGAGGAGGAGCCTCCA	1500
QУ	1501	GCAATATTCAACAGTCTTCCCTTGCCTCGGGCTGTCCTAGCCTCCCCTTGTGTGGCCACA	1560
Db	1501	GCAATATTCAACAGTCTTCCCTTGCCTCGGGCTGTCCTAGCCTCCCCTTGTGTGGCCACA	1560
Qу	1561	GTTACCATCTTGGATGATGACCATGCAGGCATCTTCACTTTTGAATGTGATACTATTCAT	1620
Db	1561		1620
Qу	1621	GTCAGTGAGAGTATTGGTGTTATGGAGGTCAAGGTTCTGCGGACATCAGGTGCCCGGGGT	1680
Db	1621		1680
Qу	1681	${\tt ACAGTCATCGTCCCCTTTAGGACAGTAGAAGGGACAGCCAAGGGTGGCGGTGAGGACTTT}$	1740
Db	1681		1740
Qу	1741	GAAGACACATATGGGGAGTTGGAATTCAAGAATGATGAAAAC———TGTGAAAACCATAAG	1796
Db	1741		1800
Qу	1797	GGTTAAAATAGTAGATGAGGAGGAATACGAAAGGCAAGAGA 1837	

```
RESULT 15
AAH57377
    AAH57377 standard; cDNA; 2814 BP.
ID
XX
AC
    AAH57377;
XX
DT
    10-SEP-2001 (first entry)
XX
DE
    Human heart cell specific cDNA sequence SEQ ID NO:217.
XX
KW
    Human; tissue specific; diagnosis; brain; heart; skeletal muscle; lung;
KW
    liver; uterus; ovary; stomach; intestine; kidney; pancreas; ss;
KW
    metabolic disease; developmental disease; cytostatic; immunomodulatory;
KW
    neuroprotective; gene therapy; cancer; immunopathology; neuropathology.
XX
OS
    Homo sapiens.
XX
PN
    WO200132927-A2.
XX
PD
     10-MAY-2001.
XX
     02-NOV-2000; 2000WO-US030396.
PF
XX
PR
     04-NOV-1999;
                    99US-0163508P.
XX
PA
     (INCY-) INCYTE GENOMICS INC.
XX
ΡI
     Sornasse T, Seilhamer JJ, Watson GA;
XX
    WPI; 2001-291057/30.
DR
XX
PT
    New cell and tissue specific polynucleotides useful for diagnosis,
PT
    prognosis or monitoring of treatments for disorders where the gene is
PT
    associated with a cancer, immunopathology or neuropathology.
XX
PS
    Claim 1; Page 146-147; 327pp; English.
XX
CC
    AAH57161 to AAH57576 represent cell and tissue specific polynucleotide
CC
    sequences (I). (I) can have cytostatic, immunomodulatory and
CC
    neuroprotective activities, and can be used in gene therapy. (I) and
CC
    proteins (II) encoded by then are used in high throughput screening
CC
    assays to select DNA molecules, RNA molecules, peptide nucleic acids,
CC
    mimetics, peptides, proteins, agonists, antagonists, antibodies or their
     fragments, immunoglobulins, inhibitors, drug compounds and pharmaceutical
CC
CC
     agents. Expression of (I) in a sample indicates the differentiation of
     embryonic stem cells into a tissue selected from brain, heart, kidney,
CC
CC
     liver, lung, skeletal muscle or pancreatic tissues. (I) and (II) are used
CC
     to produce an expression profile that defines a metabolic or
CC
    developmental process, treatment, condition, disease or disorder. The
CC
     gene profile can be used for diagnosis, prognosis or monitoring of
CC
     treatments and for investigating a predisposition to a disorder where the
CC
     gene is associated with a cancer, immunopathology or neuropathology
XX
     Sequence 2814 BP; 754 A; 579 C; 718 G; 763 T; 0 U; 0 Other;
SQ
```

48.0%; Score 1326.4; DB 4; Length 2814; Query Match Pred. No. 0; Best Local Similarity 69.8%; Matches 1893; Conservative 0; Mismatches 756; Indels 63; Gaps 5; 109 GACGTGCCAAGCACAGGGCAGAACAATGAGTCCTGTTCAGGGTCATCGGACTGCAAGGAG 168 Qу 1 1 1 11 111 1 11 1111 112 GAAATGGAAGGAAGGAAATGAAACTGGTGAATGTACTGGATCATATTACTGTAAGAAA 171 Db 169 GGTGTCATCCTGCCAATCTGGTACCCGGAGAACCCTTCCCTTGGGGACAAGATTGCCAGG 228 Qу 172 GGGGTGATTTTGCCCATTTGGGAACCCCAAGACCCTTCTTTTGGGGACAAAATTGCTAGA 231 Db 229 GTCATTGTCTATTTTGTGGCCCTGATATACATGTTCCTTGGGGTGTCCATCATTGCTGAC 288 Qу 232 GCTACTGTGTATTTTGTGGCCATGGTCTACATGTTTCTTGGAGTCTCTATCATAGCTGAT 291 Db Qу 292 CGGTTCATGTCCTCTATAGAAGTCATCACATCTCAAGAAAAAGAAATAACCATAAAGAAA 351 Db 349 CCCAATGGAGAAACCAGCACCACTATTCGGGTCTGGAATGAAACTGTCTCCAACCTG 408 Qу 352 CCCAATGGAGAGACCACCAAGACAACTGTGAGGATCTGGAATGAAACAGTTTCTAACCTG 411 Db 409 ACCCTTATGGCCCTGGGTTCCTCTGCTCCTGAGATACTCCTCTTTTAATTGAGGTGTGT 468 Qу 711 | 11111111111 | 11111111111111 | 11111 | 11111 412 ACCTTGATGGCCCTGGGATCTTCTGCTCCTGAGATTCTCCTTTCAGTAATTGAAGTGTGT 471 Db 469 GGTCATGGGTTCATTGCTGGTGATCTGGGACCTTCTACCATTGTAGGGAGTGCAGCCTTC 528 Qу 472 GGCCATAACTTCACTGCAGGAGACCTCGGTCCTAGCACCATCGTGGGAAGTGCTGCATTC 531 Db 529 AACATGTTCATCATCATTGGCATCTGTGTCTACGTGATCCCAGACGGAGAGACTCGCAAG 588 Qу 11 111:1111:11 1111 532 AATATGTTCATCATTATTGCACTCTGTGTTTATGTGGTGCCTGACGGAGAGACAAGGAAG 591 Db 589 ATCAAGCATCTACGAGTCTTCATCACCGCTGCTTGGAGTATCTTTGCCTACATCTGG 648 Qу 41 191999 1 17 19111911 1 19 14 15 17 1711 171119911119 592 ATTAAGCATTTGCGTGTCTTCTTTGTGACAGCAGCCTGGAGCATCTTTGCCTACACCTGG 651 Db 649 CTCTATATGATTCTGGCAGTCTTCTCCCCTGGTGTGGTCCAGGTTTGGGAAGGCCTCCTC 708 Qу 652 CTTTACATTATTTTGTCTGTCATATCTCCTGGTGTTGTGGGAGGTCTGGGAAGGTTTGCTT 711 Db 709 ACTCTCTTCTTCCAGTGTGTGTCCTTCTGGCCTGGGTGGCAGATAAACGACTGCTC 768 Qу 712 ACTTTCTTCTTCTCCCATCTGTGTTGTTGTTCGCTTGGGTAGCGGATAGGAGACTTCTG 771 Db 769 TTCTACAAATACATGCACAAAAAGTACCGCACAGACAACACCGAGGAATTATCATAGAG 828 Qy 772 TTTTACAAGTATGTCTACAAGAGGTATCGAGCTGGCAAGCAGGGGGGGATGATTATTGAA 831 Db 829 ACAGAGGGTGACCACCC-----TAAGGGCATTGAGATGGAAAATGATGAAT 879 Qу 11 11 111  $\mathbf{I}$ 832 CATGAAGGACAGGCCATCTTCTAAGACTGAAATTGAAATGGACGGGAAAGTGGTCAAT 891 Db

Qу	880	TCCCATTTTCTAGATGGGAACCTGGTGCCCCTGGAAGGGAAG	921
Db	892		951
Qу	922	GAAGTGGATGAGTCCCGCAGAGAGATGATCCGGATTCTCAAGGATCTGAAGCAAAAACAC	981
Db	952	GATGATGAAGAAGCTAGGCGAGAAATGGCTAGGATTCTGAAGGAACTTAAGCAGAAGCAT	1011
Qy	982	CCAGAGAAGGACTTAGATCAGCTGGTGGAGATGGCCAATTACTATGCTCTTTCCCACCAA	1041
Db	1012	CCAGATAAAGAAATAGAGCAATTAATAGAATTAGCTAACTACCAAGTCCTAAGTCAGCAG	1071
Qy	1042	CAGAAGAGCCGCGCCTTCTACCGTATCCAAGCCACTCGTATGATGACTGGTGCAGGCAAT	1101
Db	1072		1131
Qy	1102	ATCCTGAAGAAACATGCAGCAGAACAAGCCAAGAAGGCCTCCAGCATGAGCGAGGTGCAC	1161
Db	1132	ATTTTAAAGAGGCATGCAGCTGACCAAGCAAGGAAGGCTGTCAGCATGCACGAGGTCAAC	1191
Qу	1162	ACCGATGAGCCTGAGGACTTTATTTCCAAGGTCTTCTTTGACCCATGTTCTTACCAG	1218
Db	1192	ACTGAAGTGACTGAAAATGACCCTGTTAGTAAGATCTTCTTTGAACAAGGGACATATCAG	1251
Qу	1219	TGCCTGGAGAACTGTGGGGCTGTACTCCTGACAGTGGTGAGGAAAGGGGGGAGACATGTCA	1278
Db	1252	TGTCTGGAGAACTGTGGTACTGTGGCCCTTACCATTATCCGCAGAGGTGGTGATTTGACT	1311
Qу	1279	AAGACCATGTATGTGGACTACAAAACAGAGGATGGTTCTGCCAATGCAGGGGCTGACTAT	1338
Db	1312	AACACTGTGTTTGTTGACTTCAGAACAGAGGATGGCACAGCAAATGCTGGGTCTGATTAT	1371
Qy	1339	GAGTTCACAGAGGGCACGGTGGTTCTGAAGCCAGGAGAGACCCAGAAGGAGTTCTCCGTG	1398
Db	1372	GAATTTACTGAAGGAACTGTGGTGTTTAAGCCTGGTGATACCCAGAAGGAAATCAGAGTG	1431
Qy	1399	GGCATAATTGATGACGACATTTTTGAGGAGGATGAACACTTCTTTGTAAGGTTGAGCAAT	1458
Db	1432	GGTATCATAGATGATGATATCTTTGAGGAGGATGAAAATTTCCTTGTGCATCTCAGCAAT	1491
Qy	1459	GTCCGCATAGAGGAGGAGCAGCCAGAGGAGGGGGATGCCTCCAGCAATATTCAACAGTCTT	1518
Db	1492	GTCAAAGTATCTTCTGAAGCTTCAGAAGATGGCATACTGGAAGCCAATCAT	1542
Qy	1519	CCCTTGCCTCGGGCTGTCCTAGCCTCCCCTTGTGTGGCCACAGTTACCATCTTGGATGAT	1578
Db	1543	GTTTCTACACTTGCCTCGGATCTCCCTCCACTGCCACTGTAACTATTTTTGATGAT	1602
Qy	1579	GACCATGCAGGCATCTTCACTTTTGAATGTGATACTATTCATGTCAGTGAGAGTATTGGT	1638
Db	1603	GACCACGCAGGCATTTTTACTTTTGAGGAACCTGTGACTCATGTGAGTGA	1662
Qу	1639	GTTATGGAGGTCAAGGTTCTGCGGACATCAGGTGCCCGGGGTACAGTCATCGTCCCCTTT	1698
Db	1663	ATCATGGAGGTGAAAGTATTGAGAACATCTGGAGCTCGAGGAAATGTTATCGTTCCATAT	1722
Ov	1699	AGGACAGTAGAAGGGACAGCCAAGGGTGGCGGTGAGGACTTTGAAGACACATATGGGGAG	1758

Db	1723		1782
Qу	1759	TTGGAATTCAAGAATGATGAAAACTGTGAAAAACCATAAGGGTTAAAATAGTAGATGAGGAG	1818
Db	1783	CTCGAATTCCAGAATGATGAAATTGTGAAGATCATTACCATTAGAATATTTGACCGTGAG	1842
Qу	1819	GAATACGAAAGGCAAGAGAATTTCTTCATTGCCCTTGGTGAACCGAAATGGATGG	1878
Db	1843	GAATATGAGAAAGAGTGCAGTTTCTCCCTTGTGCTTGAGGAACCAAAATGGATAAGAAGA	1902
Qу	1879	GGAATATCAGATGTGACAGACAGGAAGCTGACTATG	1914
Db	1903	GGAATGAAAGGTGGCTTCACAATAACAGACGAATATGATGACAAGCAGCCACTGACCAGC	1962
QУ	1915	GAAGAAGAGGGCCAAGAGGATAGCAGAGATGGGAAAGCCAGTATTGGGTGAACACCCC	1974
Db	1963		2022
Qу	1975	AAACTAGAAGTCATCAAGAGTCCTATGAGTTCAAGACTACGGTGGACAAACTGATC	2034
Db	2023		2082
Qу	2035	AAGAAGACAAACCTGGCCTTGGTTGTGGGGACCCATTCCTGGAGGGACCAGTTCATGGAG	2094
Db	2083	AAGAAGACAAACCTGGCCCTTGTGGTTGGGACTAACAGCTGGAGAACAGTTCATTGAA	2142
QУ	2095	GCCATCACCGTCAGTGCAGCAGGGGATGAGGATGAGTCCGGGGAGGAGAGGCTG	2154
Db	2143	GCTATCACTGTCAGTGCTGGGGAAGATGATGACGACGATGAATGTGGGGAAGAAGCTG	2202
Qу	2155	CCCTCCTGCTTTGACTACGTCATGCACTTCCTGACTGTCTTCTGGAAGGTGCTGTTTGCC	2214
Db	2203	CCCTCCTGTTTCGATTACGTGATGCACTTTCTGACTGTTTCTGGAAGGTCCTGTTTGCC	2262
Qу	2215	TGTGTGCCCCCACAGAGTACTGCCACGGCTGGGCCTGCTTCGCCGTCTCCATCCTCATC	2274
Db	2263	TTCGTCCCCCCTACTGAATACTGGAATGGCTGGGCGTGTTTCATTGTCTCCATCCTCATG	2322
Qy	2275	ATTGGCATGCTCACCGCCATCATTGGGGACCTGGCCTCGCACTTCGGCTGCACCATTGGT	2334
Db	2323	ATTGGCCTACTGACAGCTTTCATTGGAGACCTGGCTTCCCACTTTGGCTGCACCATTGGC	2382
Qу	2335	CTCAAAGATTCAGTCACAGCTGTTGTTTTCGTGGCATTTGGCACCTCTGTCCCAGATACG	2394
Db	2383		2442
Qγ	2395	TTTGCCAGCAAAGCTGCTGCCCTCCAGGATGTATATGCAGACGCCTCCATTGGCAACGTG	2454
Db	2443	TTTGCCAGCAAAGTGGCAGCCACCCAGGACCAGTATGCAGACGCCTCCATAGGTAACGTC	2502
Qу	2455	ACGGGCAGCAACGCCGTCAATGTCTTCCTGGGCATCGGCCTGGCCTGGTCCGTGGCCGCC	2514
Db	2503	ACGGGCAGCAACGCGGTGAATGTCTTCCTGGGAATCGGTGTGGCCTGGTCCATCGCTGCC	2562
Qy	2515	ATCTACTGGGCTCTGCAGGGACAGGAGTTCCACGTGTCGGCCGGC	2574

Db	2563	ATCTACCACGCAGCCAATGGGGAACAGTTCAAAGTGTCCCCTGGCACACTAGCTTTCTCT 2622	2
Qy	2575	GTCACCCTCTTCACCATCTTTGCATTTGTCTGCATCAGCGTGCTCTTGTACCGAAGGCGG 2634	1
Db	2623	GTCACTCTCTCACCATTTTTGCTTTCATCAATGTGGGGGTGCTGCTGTATCGGCGGAGG 2682	2
QУ	2635	CCGCACCTGGGAGGGGAGCTTGGTGGCCCCCGTGGCTGCAAGCTCGCCACAACATGGCTC 2694	1
Db	2683	CCAGAAATCGGAGGTGAGCTGGGTGGGCCCCGGACTGCCAAGCTCCTCACATCCTGCCTC 2742	2
Qу	2695	TTTGTGAGCCTGTGGCTCCTCTACATACTCTTTGCCACACTAGAGGCCTATTGCTACATC 2754	1
Db	2743	TTTGTGCTCCTATGGCTCTTGTACATTTTCTTCTCCTCCTGGAGGCCTACTGCCACATA 2802	2
QУ	2755	AAGGGGTTCTAA 2766	
Db	2803	AAAGGCTTCTAA 2814	

Search completed: June 25, 2004, 07:40:38 Job time: 985.401 secs

## GenCore version 5.1.6 Copyright (c) 1993 - 2004 Compugen Ltd.

OM nucleic - nucleic search, using sw model

Run on: June 25, 2004, 06:15:36; Search time 210.931 Seconds

(without alignments)

7277.246 Million cell updates/sec

Title: US-10-054-680-1

Perfect score: 2766

1 atggcgtggttaaggttgca.....gctacatcaaggggttctaa 2766 Sequence:

Scoring table: IDENTITY NUC

Gapop 10.0 , Gapext 1.0

Searched: 682709 segs, 277475446 residues

Total number of hits satisfying chosen parameters: 1365418

Minimum DB seq length: 0

Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%

Maximum Match 100%

Listing first 45 summaries

Database : Issued Patents NA:\*

1: /cgn2 6/ptodata/2/ina/5A COMB.seq:\*

2: /cgn2\_6/ptodata/2/ina/5B\_COMB.seq:\*
3: /cgn2\_6/ptodata/2/ina/6A\_COMB.seq:\*

4: /cgn2\_6/ptodata/2/ina/6B\_COMB.seq:\*

5: /cgn2 6/ptodata/2/ina/PCTUS COMB.seq:\*

6: /cgn2 6/ptodata/2/ina/backfiles1.seq:\*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

#### SUMMARIES

Res	ult No.	Score	% Query Match	Length 1	DB	ID	Description
С	1 2	78.8 76.6	2.8	7218 1935	1	US-08-232-463-14 US-09-701-068-3	Sequence 14, Appl Sequence 3, Appli
	3	76.6	2.8	1950	4	US-09-701-068-1	Sequence 1, Appli
	4	51.6	1.9	7218	1	US-08-232-463-14	Sequence 14, Appl
С	5	50.2	1.8	390	3	US-09-197-649-7	Sequence 7, Appli
	6	46.2	1.7	3984	4	US-09-016-434-1199	Sequence 1199, Ap
	7	46.2	1.7	4559	4	US-09-919-172-61	Sequence 61, Appl
	8	44.8	1.6	2803	4	US-09-701-068-4	Sequence 4, Appli
С	9	44.2	1.6	4403765	3	US-09-103-840A-2	Sequence 2, Appli
С	10	43.8	1.6	1992	4	US-09-252-991A-9693	Sequence 9693, Ap
	11	43.8	1.6	2658	4	US-09-252-991A-9558	Sequence 9558, Ap

```
12
         43.8
                 1.6
                       2799
                                US-09-252-991A-9604
                                                            Sequence 9604, Ap
         43.4
  13
                 1.6 4411529
                              3 US-09-103-840A-1
                                                             Sequence 1, Appli
C
         42.2
   14
                 1.5
                        660 4
                                US-09-252-991A-5866
                                                            Sequence 5866, Ap
                       1983
   15
         42.2
                 1.5
                             4
                                US-09-252-991A-5825
                                                            Sequence 5825, Ap
                       1995
  16
         42.2
                 1.5
                             4
                                US-09-252-991A-5783
                                                            Sequence 5783, Ap
                       870 4
   17
         41.8
                 1.5
                                US-09-252-991A-3650
                                                            Sequence 3650, Ap
   18
         41.8
                 1.5
                       1098 4
                                US-09-252-991A-3605
                                                            Sequence 3605, Ap
  19
         41.8
                 1.5
                       3402 4
                                US-09-252-991A-1374
                                                            Sequence 1374, Ap
C
                       3687
   20
         41.8
                 1.5
                                US-09-252-991A-1193
                                                            Sequence 1193, Ap
                 1.5
                       4266 4
   21
         41.8
                                US-09-252-991A-1234
                                                            Sequence 1234, Ap
   22
         41.4
                 1.5 4403765 3
                                US-09-103-840A-2
                                                             Sequence 2, Appli
   23
         41.4
                 1.5 4411529 3
                                US-09-103-840A-1
                                                            Sequence 1, Appli
   24
         40.2
                 1.5
                       1174 3 US-09-034-985-1
                                                            Sequence 1, Appli
   25
           40
                 1.4
                        570 4
                                US-09-252-991A-10419
                                                            Sequence 10419, A
  26
           40
                 1.4
                        789
                                US-09-252-991A-10654
                                                            Sequence 10654, A
C
  27
           40
                 1.4
                        813 4
                                US-09-252-991A-10547
                                                            Sequence 10547, A
   28
           40
                 1.4
                        831
                             4
                                US-09-252-991A-10512
                                                            Sequence 10512, A
   29
         39.6
                 1.4
                       3431
                                US-09-221-017B-993
                                                            Sequence 993, App
   30
         39.2
                 1.4
                        333 4
                                US-09-252-991A-3700
                                                           Sequence 3700, Ap
  31
           39
                 1.4
                        642 4
                                US-09-252-991A-4949
                                                           Sequence 4949, Ap
           39
   32
                 1.4
                       1617 4
                                US-09-489-039A-2262
                                                            Sequence 2262, Ap
   33
           39
                      1926 4
                 1.4
                                US-09-249-585A-4
                                                            Sequence 4, Appli
   34
           39
                 1.4
                      1931 2
                                US-09-130-114-2
                                                           Sequence 2, Appli
   35
           39
                 1.4
                       1932
                                US-09-252-991A-4998
                                                           Sequence 4998, Ap
                       1548 2
   36
         38.6
                 1.4
                                US-08-762-106-5
                                                            Sequence 5, Appli
С
  37
         38.6
                 1.4
                       1548 3
                                US-09-320-774-5
                                                           Sequence 5, Appli
С
  38
         38.6
                                                           Sequence 6, Appli
                 1.4
                      1581 2
                                US-08-762-106-6
С
c 39
         38.6
                 1.4
                       1581 3
                                US-09-320-774-6
                                                           Sequence 6, Appli
   40
         38.4
                 1.4
                       318 4
                                US-09-252-991A-10314
                                                            Sequence 10314, A
                                                           Sequence 1461, Ap
   41
         38.4
                 1.4
                       387 4
                                US-09-252-991A-1461
   42
         38.4
                 1.4
                       1272 4
                                US-09-252-991A-1552
                                                           Sequence 1552, Ap
  43
                       2777 4
С
         38.4
                 1.4
                                US-09-310-463-3
                                                           Sequence 3, Appli
                       2777 4
  44
         38.4
                 1.4
                                US-08-842-248A-3
                                                           Sequence 3, Appli
   45
         38.4
                 1.4
                      50937 3
                                US-09-428-517-1
                                                           Sequence 1, Appli
```

### ALIGNMENTS

```
RESULT 1
US-08-232-463-14/c
; Sequence 14, Application US/08232463
; Patent No. 5670367
  GENERAL INFORMATION:
    APPLICANT:
                DORNER, F.
    APPLICANT:
                 SCHEIFLINGER, F.
    APPLICANT:
                 FALKNER, F. G.
    TITLE OF INVENTION: RECOMBINANT FOWLPOX VIRUS
    NUMBER OF SEQUENCES: 52
    CORRESPONDENCE ADDRESS:
       ADDRESSEE: Foley & Lardner
       STREET: 1800 Diagonal Road, Suite 500
       CITY: Alexandria
       STATE: VA
;
       COUNTRY: USA
       ZIP: 22313-0299
     COMPUTER READABLE FORM:
```

```
MEDIUM TYPE: Floppy disk
    COMPUTER: IBM PC compatible
    OPERATING SYSTEM: PC-DOS/MS-DOS
    SOFTWARE: PatentIn Release #1.0, Version #1.25
   CURRENT APPLICATION DATA:
    APPLICATION NUMBER: US/08/232,463
    FILING DATE:
    CLASSIFICATION: 435
   PRIOR APPLICATION DATA:
    APPLICATION NUMBER: US/07/935,313
    FILING DATE:
    APPLICATION NUMBER: EP 91 114 300.6
    FILING DATE: 26-AUG-1991
   ATTORNEY/AGENT INFORMATION:
    NAME: BENT, Stephen A.
    REGISTRATION NUMBER: 29,768
    REFERENCE/DOCKET NUMBER: 30472/114 IMMU
   TELECOMMUNICATION INFORMATION:
    TELEPHONE: (703)836-9300
    TELEFAX: (703) 683-4109
    TELEX: 899149
  INFORMATION FOR SEQ ID NO: 14:
   SEQUENCE CHARACTERISTICS:
    LENGTH: 7218 base pairs
    TYPE: nucleic acid
    STRANDEDNESS: single
    TOPOLOGY: linear
   IMMEDIATE SOURCE:
    CLONE: pTZqpt-F1s
US-08-232-463-14
                 2.8%; Score 78.8; DB 1; Length 7218;
 Query Match
 Best Local Similarity 3.8%; Pred. No. 1.7e-12;
 Matches 14; Conservative 231; Mismatches 123; Indels 0; Gaps
      1678 GGTACAGTCATCGTCCCCTTTAGGACAGTAGAAGGGACAGCCAAGGGTGGCGGTGAGGAC 1737
QУ
         Db
      1738 TTTGAAGACACATATGGGGAGTTGGAATTCAAGAATGATGAAACCTGTGAAAACCATAAGG 1797
Qу
           Db
      1798 GTTAAAATAGTAGATGAGGAGGAATACGAAAGGCAAGAGAATTTCTTCATTGCCCTTGGT 1857
Qy
         : :::: :: ::: :::::: : :::::::
                                         : :
      Db
      1858 GAACCGAAATGGATGGAACGTGGAATATCAGATGTGACAGGAAGCTGACTATGGAA 1917
Qу
         Db
      1918 GAAGAGGAGGCCAAGAGGATAGCAGAGATGGGAAAGCCAGTATTGGGTGAACACCCCAAA 1977
Qу
         Db
      1978 CTAGAAGTCATCATGAAGAGTCCTATGAGTTCAAGACTACGGTGGACAAACTGATCAAG 2037
Qу
```

```
Db
       2038 AAGACAAA 2045
Qy
           :::: :::
Db
       1100 RRRRRRR 1093
RESULT 2
US-09-701-068-3
; Sequence 3, Application US/09701068
; Patent No. 6677506
; GENERAL INFORMATION:
; APPLICANT: Galil, Gad et al.
  TITLE OF INVENTION: DNA CODING FOR A Mq2+/H+ OR Zn2+/H+ EXCHANGER AND
TRANSGENIC PLANTS
  TITLE OF INVENTION: EXPRESSING SAME
  FILE REFERENCE: 01/21317
  CURRENT APPLICATION NUMBER: US/09/701,068
  CURRENT FILING DATE: 2001-05-07
  NUMBER OF SEQ ID NOS: 17
  SOFTWARE: PatentIn version 3.0
; SEQ ID NO 3
   LENGTH: 1935
   TYPE: DNA
   ORGANISM: Arabidopsis thaliana
   FEATURE:
   NAME/KEY: CDS
   LOCATION: (136)..(1755)
US-09-701-068-3
 Query Match
                     2.8%; Score 76.6; DB 4; Length 1935;
 Best Local Similarity 51.3%; Pred. No. 3.1e-12;
 Matches 178; Conservative 0; Mismatches 169; Indels
                                                    0; Gaps
                                                               0;
       2174 TCATGCACTTCCTGACTGTCTTCTGGAAGGTGCTGTTTTGCCTGTGTGCCCCCCACAGAGT 2233
Qу
                        1169 TCTGGCATTTACTCCTCGCCCCTTGGAAACTGCTTTTTGCATTTGTGCCCCCCTGCAACA 1228
       2234 ACTGCCACGGCTGGGCCTGCTTCGCCGTCTCCATCCTCATCATTGGCATGCTCACCGCCA 2293
Qу
               1229 TTGCTCACGGTTGGATCGCTTTCATCTGCTCTCTCTCTCATCAGTGGAGTAGCCTTTG 1288
Db
       2294 TCATTGGGGACCTGGCCTCGCACTTCGGCTGCACCATTGGTCTCAAAGATTCAGTCACAG 2353
Qу
           Db
       1289 TTGTCACAAGATTTACTGACCTTATAAGCTGTGTCACTGGAATAAACCCATATGTGATAG 1348
       2354 CTGTTGTTTTCGTGGCATTTGGCACCTCTGTCCCAGATACGTTTGCCAGCAAAGCTGCTG 2413
Qy
           1 1
                     1349 CATTCACAGCACTCGCAAGTGGAACTTCATGGCCAGACTTAGTAGCAAGTAAAATCGCTG 1408
Db
Qу
       2414 CCCTCCAGGATGTATATGCAGACGCCTCCATTGGCAACGTGACGGGCAGCAACGCCGTCA 2473
              1409 CAGAGCGACAACTAACCGCAGATTCAGCTATTGCAAACATCACCTGCAGTAACTCGGTGA 1468
Db
       2474 ATGTCTTCCTGGGCATCGGCCTGGCCTGGTCCGTGGCCGCCATCTAC 2520
Qу
                 1 111
       1469 ACATCTATGTGGGGATTGGAGTTCCGTGGCTGATAAACACAGTCTAC 1515
Db
```

```
RESULT 3
US-09-701-068-1
; Sequence 1, Application US/09701068
; Patent No. 6677506
; GENERAL INFORMATION:
  APPLICANT: Galil, Gad et al.
  TITLE OF INVENTION: DNA CODING FOR A Mg2+/H+ OR Zn2+/H+ EXCHANGER AND
TRANSGENIC PLANTS
  TITLE OF INVENTION: EXPRESSING SAME
  FILE REFERENCE: 01/21317
  CURRENT APPLICATION NUMBER: US/09/701,068
  CURRENT FILING DATE: 2001-05-07
  NUMBER OF SEQ ID NOS: 17
  SOFTWARE: PatentIn version 3.0
; SEQ ID NO 1
   LENGTH: 1950
   TYPE: DNA
   ORGANISM: Arabidopsis thaliana
US-09-701-068-1
                       2.8%; Score 76.6; DB 4; Length 1950;
 Query Match
 Best Local Similarity 51.3%; Pred. No. 3.2e-12;
 Matches 178; Conservative 0; Mismatches 169; Indels 0; Gaps
       2174 TCATGCACTTCCTGACTGTCTTCTGGAAGGTGCTGTTTGCCTGTGTGCCCCCCACAGAGT 2233
Qу
                         1174 TCTGGCATTTACTCCTCGCCCCTTGGAAACTGCTTTTTGCATTTGTGCCCCCCTGCAACA 1233
Db
       2234 ACTGCCACGGCTGGGCCTGCTTCGCCGTCTCCATCCTCATTGGCATGCTCACCGCCA 2293
Qу
                Db
       1234 TTGCTCACGGTTGGATCGCTTTCATCTGCTCTCTCTCTCATCAGTGGAGTAGCCTTTG 1293
       2294 TCATTGGGGACCTGGCCTCGCACTTCGGCTGCACCATTGGTCTCAAAGATTCAGTCACAG 2353
Qу
                      1294 TTGTCACAAGATTTACTGACCTTATAAGCTGTGTCACTGGAATAAACCCATATGTGATAG 1353
Db
       2354 CTGTTGTTTTCGTGGCATTTGGCACCTCTGTCCCAGATACGTTTGCCAGCAAAGCTGCTG 2413
Qу
                      1 11 11 111
       1354 CATTCACAGCACTCGCAAGTGGAACTTCATGGCCAGACTTAGTAGCAAGTAAAATCGCTG 1413
Db
       2414 CCCTCCAGGATGTATATGCAGACGCCTCCATTGGCAACGTGACGGCCAGCAACGCCGTCA 2473
Qу
               1414 CAGAGCGACAACTAACCGCAGATTCAGCTATTGCAAACATCACCTGCAGTAACTCGGTGA 1473
Db
       2474 ATGTCTTCCTGGGCATCGGCCTGGCCTGGTCCGTGGCCGCCATCTAC 2520
Qу
            1474 ACATCTATGTGGGGATTGGAGTTCCGTGGCTGATAAACACAGTCTAC 1520
Db
RESULT 4
US-08-232-463-14
; Sequence 14, Application US/08232463
; Patent No. 5670367
; GENERAL INFORMATION:
    APPLICANT: DORNER, F.
```

```
APPLICANT: SCHEIFLINGER, F.
   APPLICANT: FALKNER, F. G.
    TITLE OF INVENTION: RECOMBINANT FOWLPOX VIRUS
   NUMBER OF SEQUENCES: 52
   CORRESPONDENCE ADDRESS:
     ADDRESSEE: Foley & Lardner
     STREET: 1800 Diagonal Road, Suite 500
     CITY: Alexandria
     STATE: VA
     COUNTRY: USA
     ZIP: 22313-0299
   COMPUTER READABLE FORM:
     MEDIUM TYPE: Floppy disk
     COMPUTER: IBM PC compatible
     OPERATING SYSTEM: PC-DOS/MS-DOS
     SOFTWARE: PatentIn Release #1.0, Version #1.25
   CURRENT APPLICATION DATA:
     APPLICATION NUMBER: US/08/232,463
     FILING DATE:
     CLASSIFICATION: 435
   PRIOR APPLICATION DATA:
     APPLICATION NUMBER: US/07/935,313
     FILING DATE:
     APPLICATION NUMBER: EP 91 114 300.6
     FILING DATE: 26-AUG-1991
   ATTORNEY/AGENT INFORMATION:
    NAME: BENT, Stephen A.
     REGISTRATION NUMBER: 29,768
     REFERENCE/DOCKET NUMBER: 30472/114 IMMU
   TELECOMMUNICATION INFORMATION:
     TELEPHONE: (703)836-9300
     TELEFAX: (703) 683-4109
     TELEX: 899149
  INFORMATION FOR SEQ ID NO: 14:
   SEQUENCE CHARACTERISTICS:
     LENGTH: 7218 base pairs
     TYPE: nucleic acid
     STRANDEDNESS: single
     TOPOLOGY: linear
    IMMEDIATE SOURCE:
     CLONE: pTZgpt-F1s
US-08-232-463-14
 Query Match
                    1.9%; Score 51.6; DB 1; Length 7218;
 Best Local Similarity 5.9%; Pred. No. 0.00023;
 Matches 24; Conservative 215; Mismatches 169; Indels 0; Gaps 0;
       395 CTGTCTCCAACCTGACCCTTATGGCCCTGGGTTCCTCTGCTCCTGAGATACTCCTCTT 454
Qу
           Db
Qу
       455 TAATTGAGGTGTGTGGTCATGGGTTCATTGCTGGTGATCTGGGACCTTCTACCATTGTAG 514
           Db
       515 GGAGTGCAGCCTTCAACATGTTCATCATCATTGGCATCTGTGTCTACGTGATCCCAGACG 574
Qу
```

```
Db
      575 GAGAGACTCGCAAGATCAAGCATCTACGAGTCTTCTTCATCACCGCTGCTTGGAGTATCT 634
Qу
              Db
      635 TTGCCTACATCTGGCTCTATATGATTCTGGCAGTCTTCTCCCCTGGTGTGGTCCAGGTTT 694
Οv
          Db
      695 GGGAAGGCCTCCTCACTCTTCTTCTTCTTCCAGTGTGTCCTTCTGGCCTGGGTGGCAG 754
Qу
               Db
       755 ATAAACGACTGCTCTTCTACAAATACATGCACAAAAAGTACCGCACAG 802
Qу
           1438 CCAAATTCTTCTATCTCTTTAACTACTTGCATAGATAGGTAATTACAG 1485
Db
RESULT 5
US-09-197-649-7/c
; Sequence 7, Application US/09197649
; Patent No. 6194550
; GENERAL INFORMATION:
 APPLICANT: Gold, Larry
; APPLICANT: Tuerk, Craig
; APPLICANT: Pribnow, David
; APPLICANT: Smith, Jonathan D.
 TITLE OF INVENTION: Systematic Polypeptide Evolution by Reverse Translation
; FILE REFERENCE: NEX02/C1-CON
 CURRENT APPLICATION NUMBER: US/09/197,649
  CURRENT FILING DATE: 1998-11-23
  EARLIER APPLICATION NUMBER: 07/829,461
  EARLIER FILING DATE: 1992-01-31
  EARLIER APPLICATION NUMBER: 07/739,055
  EARLIER FILING DATE: 1991-08-01
  EARLIER APPLICATION NUMBER: 07/561,968
 EARLIER FILING DATE: 1990-08-02
 NUMBER OF SEQ ID NOS: 26
  SOFTWARE: PatentIn Ver. 2.0
; SEQ ID NO 7
  LENGTH: 390
  TYPE: DNA
  ORGANISM: Artificial Sequence
  OTHER INFORMATION: Description of Artificial Sequence: Sequence
  OTHER INFORMATION: having a 120 repeat of ACG flanked by fixed
  OTHER INFORMATION: fragments having NcoI restriction sites.
US-09-197-649-7
                   1.8%; Score 50.2; DB 3; Length 390;
 Query Match
 Best Local Similarity 46.0%; Pred. No. 8.4e-05;
 Matches 169; Conservative 0; Mismatches 198; Indels
                                              0; Gaps
      2238 CCACGGCTGGGCCTGCTTCGCCGTCTCCATCCTCATCATTGGCATGCTCACCGCCATCAT 2297
Qy
                Db
```

```
2298 TGGGGACCTGGCCTCGCACTTCGGCTGCACCATTGGTCTCAAAGATTCAGTCACAGCTGT 2357
Qу
                     1 1 1 1 1 1
                                           111
                                              1 11
Db
      2358 TGTTTTCGTGGCATTTGGCACCTCTGTCCCAGATACGTTTGCCAGCAAAGCTGCTGCCCT 2417
Qу
          Db
      2418 CCAGGATGTATATGCAGACGCCTCCATTGGCAACGTGACGGGCAGCAACGCCGTCAATGT 2477
Qy
         Db
      2478 CTTCCTGGGCATCGGCCTGGCCTGGTCCGTGGCCGCCATCTACTGGGCTCTGCAGGGACA 2537
Qу
         Db
      2538 GGAGTTCCACGTGTCGGCCGGCACACTGGCCTTCTCCGTCACCCTCTTCACCATCTTTGC 2597
Qу
                    1 11 1
                           Db
      2598 ATTTGTC 2604
Qy
           1 111
       15 CGTCGTC 9
Db
RESULT 6
US-09-016-434-1199
; Sequence 1199, Application US/09016434
; Patent No. 6500938
 GENERAL INFORMATION:
   APPLICANT: Janice Au-Young
   APPLICANT: Jeffrey J. Seilhamer
   TITLE OF INVENTION: COMPOSITION FOR THE DETECTION OF SIGNALING
   TITLE OF INVENTION: PATHWAY GENE EXPRESSION
   NUMBER OF SEQUENCES: 1490
   CORRESPONDENCE ADDRESS:
    ADDRESSEE: INCYTE PHARMACEUTICALS, INC.
    STREET: 3174 PORTER DRIVE
    CITY: PALO ALTO
    STATE: CALIFORNIA
    COUNTRY: USA
    ZIP: 94304
   COMPUTER READABLE FORM:
    MEDIUM TYPE: Floppy disk
    COMPUTER: IBM PC compatible
    OPERATING SYSTEM: PC-DOS/MS-DOS
    SOFTWARE: Word Perfect 6.1 for Windows/MS-DOS 6.2
   CURRENT APPLICATION DATA:
    APPLICATION NUMBER: US/09/016,434
    FILING DATE: HEREWITH
    CLASSIFICATION:
   PRIOR APPLICATION DATA:
    APPLICATION NUMBER:
    FILING DATE:
    CLASSIFICATION:
   ATTORNEY/AGENT INFORMATION:
```

```
NAME: Zeller, Karen J.
      REGISTRATION NUMBER: 37,071
     REFERENCE/DOCKET NUMBER: PA-0002 US
    TELECOMMUNICATION INFORMATION:
     TELEPHONE: (650) 855-0555
      TELEFAX: (650) 845-4166
  INFORMATION FOR SEQ ID NO: 1199:
    SEQUENCE CHARACTERISTICS:
     LENGTH: 3984 base pairs
     TYPE: nucleic acid
     STRANDEDNESS: single
     TOPOLOGY: linear
    IMMEDIATE SOURCE:
     LIBRARY: GENBANK
     CLONE: q181907
US-09-016-434-1199
 Query Match
                     1.7%; Score 46.2; DB 4; Length 3984;
 Best Local Similarity 51.7%; Pred. No. 0.0065;
 Matches 105; Conservative 0; Mismatches 98; Indels
                                                     0; Gaps
                                                                0;
       2434 GACGCCTCCATTGGCAACGTGACGGCCAGCACGCCGTCAATGTCTTCCTGGGCATCGGC 2493
Qy
           674 GCCTTCTCCAAGGACATCTTCTCCGTCATCAACTTCTTCAGCTTCTTCAACTGGCTCTGC 733
       2494 CTGGCCTGGTCCGTGGCCGCATCTACTGGGCTCTGCAGGGACAGGAGTTCCACGTGTCG 2553
Qу
            734 GTGGCCCTGGCCATCATCGGCATGATCTGGCTGCGCCACAGAAAGCCTGAGCTTGAGCGG 793
Db
Qу
       2554 GCCGGCACACTGGCCTTCTCCGTCACCCTCTTCACCATCTTTGCATTTGTCTGCATCAGC 2613
            Db
       2614 GTGCTCTTGTACCGAAGGCGGCC 2636
Qу
           Db
       854 GCCGTCTCCTTCTGGAAGACACC 876
RESULT 7
US-09-919-172-61
; Sequence 61, Application US/09919172
; Patent No. 6673545
; GENERAL INFORMATION:
; APPLICANT: Faris, Mary
; APPLICANT: Turner, Christopher M.
 TITLE OF INVENTION: PROSTATE CANCER MARKERS
 FILE REFERENCE: PA-0036 US
  CURRENT APPLICATION NUMBER: US/09/919,172
  CURRENT FILING DATE: 2001-07-30
  PRIOR APPLICATION NUMBER: 60/222,469
; PRIOR FILING DATE: 2000-07-28
; NUMBER OF SEQ ID NOS: 102
 SOFTWARE: PERL Program
; SEQ ID NO 61
  LENGTH: 4559
  TYPE: DNA
; ORGANISM: Homo sapiens
```

```
FEATURE:
   NAME/KEY: misc feature
   OTHER INFORMATION: Incyte ID No. 6673545 008942.10
US-09-919-172-61
 Query Match
                      1.7%; Score 46.2; DB 4; Length 4559;
 Best Local Similarity 51.7%; Pred. No. 0.0071;
 Matches 105; Conservative
                           0; Mismatches 98; Indels
                                                      0; Gaps
       2434 GACGCCTCCATTGGCAACGTGACGGCAGCAACGCCGTCAATGTCTTCCTGGGCATCGGC 2493
Qу
            Db
       1233 GCCTTCTCCAAGGACATCTTCTCCGTCATCAACTTCTTCAGCTTCTTCAACTGGCTCTGC 1292
       2494 CTGGCCTGGTCCGTGGCCGCCATCTACTGGGCTCTGCAGGGACAGGAGTTCCACGTGTCG 2553
Qy
            1293 GTGGCCCTGGCCATCATCGGCATGATCTGGCTGCGCCACAGAAAGCCTGAGCTTGAGCGG 1352
Db
       2554 GCCGGCACACTGGCCTTCTCCGTCACCCTCTTCACCATCTTTGCATTTGTCTGCATCAGC 2613
Qу
                   Db
       2614 GTGCTCTTGTACCGAAGGCGGCC 2636
Qy
               1413 GCCGTCTCCTTCTGGAAGACACC 1435
Db
RESULT 8
US-09-701-068-4
; Sequence 4, Application US/09701068
; Patent No. 6677506
; GENERAL INFORMATION:
 APPLICANT: Galil, Gad et al.
  TITLE OF INVENTION: DNA CODING FOR A Mg2+/H+ OR Zn2+/H+ EXCHANGER AND
TRANSGENIC PLANTS
; TITLE OF INVENTION: EXPRESSING SAME
  FILE REFERENCE: 01/21317
  CURRENT APPLICATION NUMBER: US/09/701,068
  CURRENT FILING DATE: 2001-05-07
; NUMBER OF SEQ ID NOS: 17
  SOFTWARE: PatentIn version 3.0
; SEQ ID NO 4
   LENGTH: 2803
   TYPE: DNA
   ORGANISM: Arabidopsis thaliana
US-09-701-068-4
                      1.6%; Score 44.8; DB 4; Length 2803;
 Query Match
 Best Local Similarity 52.1%; Pred. No. 0.013;
 Matches 100; Conservative 0; Mismatches 92; Indels 0; Gaps
Qу
        477 GTTCATTGCTGGTGATCTGGGACCTTCTACCATTGTAGGGAGTGCAGCCTTCAACATGTT 536
                     1 1
                                                       - 1
Dh
        950 GTTTTGTCATATAGGTCTTGGTCCTGGAACACTTGTTGGCTCAGCTGCATTTGATCTTTT 1009
        537 CATCATCATTGGCATCTGTGTCTACGTGATCCCAGACGGAGAGACTCGCAAGATCAAGCA 596
Qу
                       1 1111
                                                     +11111
                   - |
       1010 CCCCATCCACGCTGTTTGTGTCGTTGTGCCAAAAGCTGGAGAACTGAAAAAGATATCCGA 1069
Db
```

```
Qу
             Db
       1070 CTTAGGTGTTTGGCTAGTTGAGCTCGTATGGTCTTTTTGGGCTTACATCTGGCTATACAT 1129
        657 GATTCTGGCAGT 668
Qу
            1130 AATCCTCGAGGT 1141
RESULT 9
US-09-103-840A-2/c
; Sequence 2, Application US/09103840A
; Patent No. 6294328
; GENERAL INFORMATION:
; APPLICANT: FLEISCHMAN, Robert D.
 APPLICANT: WHITE, Owen R. APPLICANT: FRASER, Claire M.
; APPLICANT: VENTER, John C.
; TITLE OF INVENTION: DNA SEQUENCES FOR STRAIN ANALYSIS IN MYCOBACTERIUM
; TITLE OF INVENTION: TUBERCULOSIS
; FILE REFERENCE: 24366-20007.00
; CURRENT APPLICATION NUMBER: US/09/103,840A
  CURRENT FILING DATE: 1998-06-24
; NUMBER OF SEQ ID NOS: 2
  SOFTWARE: PatentIn Ver. 2.1
; SEQ ID NO 2
  LENGTH: 4403765
   TYPE: DNA
   ORGANISM: Mycobacterium tuberculosis
   FEATURE:
   OTHER INFORMATION: CDC 1551
   OTHER INFORMATION: "n" bases at various positions throughout the sequence
   OTHER INFORMATION: represent a, t, c or g
US-09-103-840A-2
 Query Match
                     1.6%; Score 44.2; DB 3; Length 4403765;
 Best Local Similarity 46.3%; Pred. No. 3;
 Matches 145; Conservative 0; Mismatches 168; Indels 0; Gaps
                                                                0;
       2213 CCTGTGTGCCCCCCACAGAGTACTGCCACGGCTGGGCCTGCTTCGCCGTCTCCATCCTCA 2272
                - 11
Db
     3929402 CCTCCCTTACCGCCGTTGCCGCCGGCGCGCGCGCGCCGCTACGCCGCTGCCGAATCCC
3929343
       2273 TCATTGGCATGCTCACCGCCATCATTGGGGACCTGGCCTCGCACTTCGGCTGCACCATTG 2332
Qy
            3929342 GCGCCGCCTTCGCCGCCGTCCCCACCGTCACCGCCTTGGCCGCCGCCGCCCCTCG
3929283
       2333 GTCTCAAAGATTCAGTCACAGCTGTTGTTTTCGTGGCATTTTGGCACCTCTGTCCCAGATA 2392
Qy
            3929282 CTCGCCACGCCTGTCGTTCCGTTCTGGCCGTCACCACCGGCCCGCCGGTGCCGCCGGTG
3929223
       2393 CGTTTGCCAGCAAAGCTGCTGCCCTCCAGGATGTATATGCAGACGCCTCCATTGGCAACG 2452
Qy
```

597 TCTACGAGTCTTCTTCATCACCGCTGCTTGGAGTATCTTTGCCTACATCTGGCTCTATAT 656

```
Db
     3929222 CCGCCGGCCCCGTTGATGCCGCCGGCGCGCGTTGCCGCCGGCCCTTGGCCGCCT
3929163
Qy
       2453 TGACGGCCACCACGCCGTCAATGTCTTCCTGGGCATCGGCCTGGCCTGGTCCGTGGCCG 2512
            1
                                                            Db
     3929162 TGGCCGCCGGCGAAGCCGTTGCCGTCTTGGGAGAGGGCGCCGCTGTCGCCGGCCCCGCCG
3929103
       2513 CCATCTACTGGGC 2525
Qy
              3929102 TCGCCGCCGCGC 3929090
RESULT 10
US-09-252-991A-9693/c
; Sequence 9693, Application US/09252991A
; Patent No. 6551795
; GENERAL INFORMATION:
  APPLICANT: Marc J. Rubenfield et al.
  TITLE OF INVENTION: NUCLEIC ACID AND AMINO ACID SEQUENCES RELATING TO
PSEUDOMONAS
  TITLE OF INVENTION: AERUGINOSA FOR DIAGNOSTICS AND THERAPEUTICS
 FILE REFERENCE: 107196.136
  CURRENT APPLICATION NUMBER: US/09/252,991A
  CURRENT FILING DATE: 1999-02-18
  PRIOR APPLICATION NUMBER: US 60/074,788
  PRIOR FILING DATE: 1998-02-18
  PRIOR APPLICATION NUMBER: US 60/094,190
 PRIOR FILING DATE: 1998-07-27
; NUMBER OF SEQ ID NOS: 33142
; SEQ ID NO 9693
   LENGTH: 1992
   TYPE: DNA
   ORGANISM: Pseudomonas aeruginosa
US-09-252-991A-9693
 Query Match
                      1.6%; Score 43.8; DB 4; Length 1992;
 Best Local Similarity 47.5%; Pred. No. 0.021;
                            0; Mismatches 177; Indels
 Matches 162; Conservative
                                                       2; Gaps
                                                                  1;
       2372 TTGGCACCTCTGTCCCAGATACGTTTGCCAGCAAAGCTGCTGCCCTCCAGGATGTATATG 2431
Qу
           738 TTGGCACAGCTCGGCCTGTTCCGCCTGCTCGCCACGCTGCTGCC--GCCGGACGTACCAG 681
Db
       2432 CAGACGCCTCCATTGGCAACGTGACGGGCAGCAACGCCGTCAATGTCTTCCTGGGCATCG 2491
Qy
            680 CCGGCGGCCTGTTCCCCGCCTTCGCCGGGGTCGCCACCGGCCTGGTATCGCTGGCCGGCT 621
Db
       2492 GCCTGGCCTGGTCCGTGGCCGCCATCTACTGGGCTCTGCAGGGACAGGAGTTCCACGTGT 2551
Qу
                 620 TCGCCCTCCGCCGCTGGCAGCCCTGGGCCGGGTACCGCCGTTGCGGGTCCTGCGCAGCG 561
Db
       2552 CGGCCGGCACACTGGCCTTCTCCGTCACCCTCTTCACCATCTTTGCATTTGTCTGCATCA 2611
Qу
                   560 ACCTGCTGCCGGTGCCGATGCGCACCTGGATGGCCTACGCCTGCGCCCTGC 501
Db
       2612 GCGTGCTCTTGTACCGAAGGCGGCCGCACCTGGGAGGGGAGCTTGGTGGCCCCCGTGGCT 2671
Qу
```

```
500 GCCTGATCATGTGGCGGTTGAGTCTCGACCTGAAGCTGACCCTCGCCCTGCTCGGCGGCG 441
Db
Qy
       2672 GCAAGCTCGCCACAACATGGCTCTTTGTGAGCCTGTGGCTC 2712
           1111 1
                                   Db
        440 GCCTGGTCGCCACGCTGGTGCTCGGCGCCCTCCTGCTGCTC 400
RESULT 11
US-09-252-991A-9558
; Sequence 9558, Application US/09252991A
; Patent No. 6551795
; GENERAL INFORMATION:
; APPLICANT: Marc J. Rubenfield et al.
  TITLE OF INVENTION: NUCLEIC ACID AND AMINO ACID SEQUENCES RELATING TO
PSEUDOMONAS
; TITLE OF INVENTION: AERUGINOSA FOR DIAGNOSTICS AND THERAPEUTICS
  FILE REFERENCE: 107196.136
  CURRENT APPLICATION NUMBER: US/09/252,991A
  CURRENT FILING DATE: 1999-02-18
  PRIOR APPLICATION NUMBER: US 60/074,788
; PRIOR FILING DATE: 1998-02-18
; PRIOR APPLICATION NUMBER: US 60/094,190
 PRIOR FILING DATE: 1998-07-27
 NUMBER OF SEQ ID NOS: 33142
; SEQ ID NO 9558
  LENGTH: 2658
  TYPE: DNA
  ORGANISM: Pseudomonas aeruginosa
US-09-252-991A-9558
                     1.6%; Score 43.8; DB 4; Length 2658;
 Query Match
 Best Local Similarity 47.5%; Pred. No. 0.026;
 Matches 162; Conservative 0; Mismatches 177; Indels 2; Gaps
       2372 TTGGCACCTCTGTCCCAGATACGTTTGCCAGCAAAGCTGCTGCCCTCCAGGATGTATATG 2431
Qу
           Db
       1007 TTGGCACAGCTCGGCCTGTTCCGCCTGCTCGCCACGCTGCTGCC--GCCGGACGTACCAG 1064
       2432 CAGACGCCTCCATTGGCAACGTGACGGGCAGCAACGCCGTCAATGTCTTCCTGGGCATCG 2491
Qу
                   Db
       1065 CCGGCGGCCTGTTCCCCGCCTTCGCCGGGGTCGCCACCGGCCTGGTATCGCTGGCCGGCT 1124
       2492 GCCTGGCCTGGTCCGTGGCCGCCATCTACTGGGCTCTGCAGGGACAGGAGTTCCACGTGT 2551
QУ
                1125 TCGCCCTCCCGCCGCTGGCAGCCCTGGGCCGGGTACCGCCGTTGCGGGTCCTGCGCAGCG 1184
Db
       2552 CGGCCGGCACACTGGCCTTCTCCGTCACCCTCTTCACCATCTTTGCATTTGTCTGCATCA 2611
Qу
                  1185 ACCTGCTGCCGGTGCCGATGCGCACCTGGATGGCCTACGCCTGCGCCCTGCTCGCCCTGG 1244
Db
       2612 GCGTGCTCTTGTACCGAAGGCGGCCGCACCTGGGAGGGGAGCTTGGTGGCCCCCGTGGCT 2671
Qу
           1245 GCCTGATCATGTGGCGGTTGAGTCTCGACCTGAAGCTGACCCTCGCCCTGCTCGGCGGCG 1304
Db
       2672 GCAAGCTCGCCACAACATGGCTCTTTGTGAGCCTGTGGCTC 2712
Qу
```

```
RESULT 12
US-09-252-991A-9604
; Sequence 9604, Application US/09252991A
; Patent No. 6551795
; GENERAL INFORMATION:
 APPLICANT: Marc J. Rubenfield et al.
  TITLE OF INVENTION: NUCLEIC ACID AND AMINO ACID SEQUENCES RELATING TO
PSEUDOMONAS
; TITLE OF INVENTION: AERUGINOSA FOR DIAGNOSTICS AND THERAPEUTICS
; FILE REFERENCE: 107196.136
; CURRENT APPLICATION NUMBER: US/09/252,991A
; CURRENT FILING DATE: 1999-02-18
; PRIOR APPLICATION NUMBER: US 60/074,788
 PRIOR FILING DATE: 1998-02-18
  PRIOR APPLICATION NUMBER: US 60/094,190
; PRIOR FILING DATE: 1998-07-27
 NUMBER OF SEQ ID NOS: 33142
; SEQ ID NO 9604
   LENGTH: 2799
   TYPE: DNA
   ORGANISM: Pseudomonas aeruginosa
US-09-252-991A-9604
                     1.6%; Score 43.8; DB 4; Length 2799;
 Query Match
 Best Local Similarity 47.5%; Pred. No. 0.027;
 Matches 162; Conservative 0; Mismatches 177; Indels 2; Gaps
                                                               1;
       2372 TTGGCACCTCTGTCCCAGATACGTTTGCCAGCAAAGCTGCTGCCCTCCAGGATGTATATG 2431
Qy
            1285 TTGGCACAGCTCGGCCTGTTCCGCCTGCTCGCCACGCTGCTGCC--GCCGGACGTACCAG 1342
       2432 CAGACGCCTCCATTGGCAACGTGACGGGCAGCAACGCCGTCAATGTCTTCCTGGGCATCG 2491
Qу
            1343 CCGGCGGCCTGTTCCCCGCCTTCGCCGGGGTCGCCACCGGCCTGGTATCGCTGGCCGGCT 1402
       2492 GCCTGGCCTGGTCCGTGGCCGCCATCTACTGGGCTCTGCAGGGACAGGAGTTCCACGTGT 2551
Qу
                1403 TCGCCTCCCGCCGCTGGCAGCCCTGGGCCGGGTACCGCCGTTGCGGGTCCTGCGCAGCG 1462
Db
       2552 CGGCCGGCACACTGGCCTTCTCCGTCACCCTCTTCACCATCTTTGCATTTGTCTGCATCA 2611
Qу
                   1463 ACCTGCTGCCGGTGCCGATGCGCACCTGGATGGCCTACGCCTGCGCCCTGCTCGCCCTGG 1522
Db
       2612 GCGTGCTCTTGTACCGAAGGCGGCCGCACCTGGGAGGGGAGCTTGGTGGCCCCCGTGGCT 2671
Qy
            1523 GCCTGATCATGTGGCGGTTGAGTCTCGACCTGAAGCTGACCCTCGCCCTGCTCGGCGGCG 1582
Db
       2672 GCAAGCTCGCCACAACATGGCTCTTTGTGAGCCTGTGGCTC 2712
Qу
           Dh
       1583 GCCTGGTCGCCACGCTGGTGCTCGCGCGCCCTCCTGCTGCTC 1623
```

RESULT 13 US-09-103-840A-1/c

```
; Sequence 1, Application US/09103840A
; Patent No. 6294328
; GENERAL INFORMATION:
  APPLICANT: FLEISCHMAN, Robert D.
; APPLICANT: WHITE, Owen R.
; APPLICANT: FRASER, Claire M.
  APPLICANT: VENTER, John C.
  TITLE OF INVENTION: DNA SEQUENCES FOR STRAIN ANALYSIS IN MYCOBACTERIUM
  TITLE OF INVENTION: TUBERCULOSIS
  FILE REFERENCE: 24366-20007.00
  CURRENT APPLICATION NUMBER: US/09/103,840A
; CURRENT FILING DATE: 1998-06-24
; NUMBER OF SEQ ID NOS: 2
  SOFTWARE: PatentIn Ver. 2.1
; SEQ ID NO 1
  LENGTH: 4411529
   TYPE: DNA
   ORGANISM: Mycobacterium tuberculosis
   OTHER INFORMATION: H37Rv
US-09-103-840A-1
 Query Match
                      1.6%; Score 43.4; DB 3; Length 4411529;
 Best Local Similarity 47.3%; Pred. No. 5.2;
 Matches 131; Conservative
                           0; Mismatches 146; Indels
                                                      0; Gaps
                                                                  0;
       2241 CGGCTGGCCTGCTTCGCCGTCTCCATCCTCATCGTTGGCATGCTCACCGCCATCATTGG 2300
Qу
                 3932453 CGGCCCGCCGGCCCGCCGGCGCGCGCGTTACCGCCACCCGCGCCGCCGCCGTCGG
3932394
       2301 GGACCTGGCCTCGCACTTCGGCTGCACCATTGGTCTCAAAGATTCAGTCACAGCTGTTGT 2360
Qу
            3932393 CGCCAATCCCGCTGGCATTATCAGCACCGGAGCCACCCATGCCGCCGCCGCCCCTTGGC
3932334
       2361 TTTCGTGGCATTTGGCACCTCTGTCCCAGATACGTTTGCCAGCAAAGCTGCTGCCCTCCA 2420
Qу
                      3932333 CGCCGGTGCCGCCGCACCACCGGAGCCGTTGATGCCGCCGGCAATGGCGTTGCCGCCCT
3932274
       2421 GGATGTATATGCAGACGCCTCCATTGGCAACGTGACGGCCAGCAACGCCGTCAATGTCTT 2480
Qу
            11 1
                                                       1 11
     3932273 GGCCGCCGACGCCGGCCCGCCAGCGAACCCGGTACCACCGGTTAGACCTGTGCTGG
3932214
       2481 CCTGGGCATCGGCCTGGCCTGGTCCGTGGCCGCCATC 2517
Qy
            3932213 CGGGGGCGTCGGCGCCGCCGCCGCCAGC 3932177
Db
RESULT 14
US-09-252-991A-5866
; Sequence 5866, Application US/09252991A
; Patent No. 6551795
; GENERAL INFORMATION:
; APPLICANT: Marc J. Rubenfield et al.
```

```
TITLE OF INVENTION: NUCLEIC ACID AND AMINO ACID SEQUENCES RELATING TO
PSEUDOMONAS
  TITLE OF INVENTION: AERUGINOSA FOR DIAGNOSTICS AND THERAPEUTICS
  FILE REFERENCE: 107196.136
  CURRENT APPLICATION NUMBER: US/09/252,991A
  CURRENT FILING DATE: 1999-02-18
  PRIOR APPLICATION NUMBER: US 60/074,788
 PRIOR FILING DATE: 1998-02-18
 PRIOR APPLICATION NUMBER: US 60/094,190
  PRIOR FILING DATE: 1998-07-27
 NUMBER OF SEQ ID NOS: 33142
; SEQ ID NO 5866
  LENGTH: 660
   TYPE: DNA
   ORGANISM: Pseudomonas aeruginosa
US-09-252-991A-5866
                    1.5%; Score 42.2; DB 4; Length 660;
 Query Match
 Best Local Similarity 46.7%; Pred. No. 0.03;
 Matches 134; Conservative 0; Mismatches 153; Indels
                                                  0; Gaps
                                                             0;
       2434 GACGCCTCCATTGGCAACGTGACGGCCAGCACGCCGTCAATGTCTTCCTGGGCATCGGC 2493
Qy
           302 GTCGTCGCCTGGTCATGCTGGTCCGCGGCTTCGCCGACGCGATCATGATGCGCGGCCAA 361
Db
       2494 CTGGCCTGGTCCGTGGCCGCCATCTACTGGGCTCTGCAGGGACAGGAGTTCCACGTGTCG 2553
Qу
           362 CTGGCCCTGGCCGAAGGCGCCAACCACGGCTACCTGCCGCGGAGCACTACGACCAGATC 421
Db
       2554 GCCGGCACACTGGCCTTCTCCGTCACCCTCTTCACCATCTTTGCATTTGTCTGCATCAGC 2613
Qу
            Db
        422 TTCACCGCGCATGGCGTGATCATGATCATCTTCATGGCCATGCCGTTCATGACCGGCCTG 481
       Qу
            Db
       2674 AAGCTCGCCACAACATGGCTCTTTGTGAGCCTGTGGCTCCTCTACAT 2720
Qу
            542 TCGCTGAGCTTCTGGCTGCTCGTGGTCAGCGCCATGCTGGTCAACGT 588
Db
RESULT 15
US-09-252-991A-5825
; Sequence 5825, Application US/09252991A
; Patent No. 6551795
; GENERAL INFORMATION:
; APPLICANT: Marc J. Rubenfield et al.
  TITLE OF INVENTION: NUCLEIC ACID AND AMINO ACID SEQUENCES RELATING TO
PSEUDOMONAS
  TITLE OF INVENTION: AERUGINOSA FOR DIAGNOSTICS AND THERAPEUTICS
 FILE REFERENCE: 107196.136
; CURRENT APPLICATION NUMBER: US/09/252,991A
  CURRENT FILING DATE: 1999-02-18
; PRIOR APPLICATION NUMBER: US 60/074,788
; PRIOR FILING DATE: 1998-02-18
; PRIOR APPLICATION NUMBER: US 60/094,190
```

```
; NUMBER OF SEQ ID NOS: 33142
; SEQ ID NO 5825
  LENGTH: 1983
  TYPE: DNA
  ORGANISM: Pseudomonas aeruginosa
US-09-252-991A-5825
 Query Match 1.5%; Score 42.2; DB 4; Length 1983; Best Local Similarity 46.7%; Pred. No. 0.063;
 Matches 134; Conservative 0; Mismatches 153; Indels
                                              0; Gaps
                                                       0;
      2434 GACGCCTCCATTGGCAACGTGACGGGCAGCAACGCCGTCAATGTCTTCCTGGGCATCGGC 2493
Qу
          11 11 11 11
Db
       193 GTCGTCGCCTGGTCATGCTGGTCCGCGGCTTCGCCGACGCGATCATGATGCGCGGCCAA 252
      2494 CTGGCCTGGTCCGTGGCCGCATCTACTGGGCTCTGCAGGGACAGGAGTTCCACGTGTCG 2553
Qу
          253 CTGGCCCTGGCCGAAGGCGCCAACCACGGCTACCTGCCGCGGAGCACTACGACCAGATC 312
Db
      2554 GCCGGCACACTGGCCTTCTCCGTCACCCTCTTCACCATCTTTGCATTTGTCTGCATCAGC 2613
Qy
           313 TTCACCGCGCATGGCGTGATCATGATCATCTTCATGGCCATGCCGTTCATGACCGGCCTG 372
Db
      Qу
          11 111 1
                     Db
      2674 AAGCTCGCCACAACATGGCTCTTTGTGAGCCTGTGGCTCCTCTACAT 2720
Qy:
                      Db
       433 TCGCTGAGCTTCTGGCTGCTCGTGGTCAGCGCCATGCTGGTCAACGT 479
```

Search completed: June 25, 2004, 15:37:21

; PRIOR FILING DATE: 1998-07-27

Job time : 228.931 secs

### GenCore version 5.1.6 Copyright (c) 1993 - 2004 Compugen Ltd.

OM nucleic - nucleic search, using sw model

June 25, 2004, 07:13:27; Search time 1117.99 Seconds Run on:

(without alignments)

11333.972 Million cell updates/sec

US-10-054-680-1 Title:

Perfect score: 2766

Sequence: 1 atggcgtggttaaggttgca.....gctacatcaaggggttctaa 2766

IDENTITY NUC Scoring table:

Gapop 10.0, Gapext 1.0

3017426 segs, 2290544650 residues Searched:

Total number of hits satisfying chosen parameters: 6034852

Minimum DB seq length: 0

Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%

Maximum Match 100%

Listing first 45 summaries

Database : Published Applications NA:\*

1: /cgn2 6/ptodata/1/pubpna/US07 PUBCOMB.seq:\*

/cgn2\_6/ptodata/1/pubpna/PCT\_NEW\_PUB.seq:\*

/cgn2\_6/ptodata/1/pubpna/US06\_NEW\_PUB.seq:\*

/cgn2\_6/ptodata/1/pubpna/US06\_PUBCOMB.seq:\* 4:

5: /cgn2 6/ptodata/1/pubpna/US07 NEW PUB.seq:\*

/cgn2 6/ptodata/1/pubpna/PCTUS PUBCOMB.seq:\*

7: /cgn2\_6/ptodata/1/pubpna/US08\_NEW\_PUB.seq:\*

8: /cgn2 6/ptodata/1/pubpna/US08 PUBCOMB.seq:\*

/cgn2 6/ptodata/1/pubpna/US09A PUBCOMB.seq:\* 9:

10: /cgn2\_6/ptodata/1/pubpna/US09B\_PUBCOMB.seq:\*

11: /cgn2 6/ptodata/1/pubpna/US09C PUBCOMB.seq:\*

12: /cgn2 6/ptodata/1/pubpna/US09 NEW PUB.seq:\* 13: /cgn2 6/ptodata/1/pubpna/US09 NEW PUB.seq2:\*

14: /cgn2 6/ptodata/1/pubpna/US10A PUBCOMB.seq:\*

15: /cgn2 6/ptodata/1/pubpna/US10B PUBCOMB.seq:\*

/cgn2\_6/ptodata/1/pubpna/US10C PUBCOMB.seq:\* 16:

/cgn2 6/ptodata/1/pubpna/US10 NEW PUB.seq:\* 17:

/cgn2 6/ptodata/1/pubpna/US60 NEW PUB.seq:\* 18:

/cgn2 6/ptodata/1/pubpna/US60 PUBCOMB.seq:\*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

g

Result Query

	No.	Score	Match	Length	DB	ID	Description
	1	2766	100.0	2766	14	US-10-054-680-1	Sequence 1, Appli
	2	2766	100.0	3812	14	US-10-054-680-5	Sequence 5, Appli
	3	2761.2	99.8	2782	9	US-09-804-474A-1	Sequence 1, Appli
	4	2733.4	98.8	2781	15	US-10-275-116-1	Sequence 1, Appli
	5	2673.2	96.6	2685	15	US-10-114-153-5	Sequence 5, Appli
	6	2657.6	96.1	2840	15	US-10-114-153-3	Sequence 3, Appli
	7	2367.2	85.6	2813	15	US-10-114-153-1	Sequence 1, Appli
	8	1786.4	64.6	2534	15	US-10-256-537-1	Sequence 1, Appli
	9	1786.4	64.6	2534	15	US-10-256-537-3	Sequence 3, Appli
	10	1784.8		126512	9	US-09-804-474A-3	Sequence 3, Appli
	11	1784.6	64.5	1863	14	US-10-054-680-3	Sequence 3, Appli
	12 13	1277	46.2	4282 4282	15 15	US-10-281-866-1	Sequence 1, Appli
	14	1277 1270.8	46.2 45.9	3004	16	US-10-281-866-3 US-10-388-934-506	Sequence 3, Appli
	15	1270.8	44.4	4087	9	US-09-901-419-1	Sequence 506, App Sequence 1, Appli
	16	1207.2	43.6	6106	16	US-10-062-674-1648	Sequence 1648, Ap
	17	897.4	32.4	1187	13	US-10-243-552-809	Sequence 809, App
	18	821.4	29.7	823	15	US-10-029-386-20265	Sequence 20265, A
	19	787.2	28.5	1836	9	US-09-864-761-16939	Sequence 16939, A
	20	503.4	18.2	505	15	US-10-029-386-6536	Sequence 6536, Ap
	21	494	17.9	551	15	US-10-029-386-4103	Sequence 4103, Ap
	22	366	13.2	366	15	US-10-029-386-17804	Sequence 17804, A
	23	336.4	12.2	507	15	US-10-029-386-4003	Sequence 4003, Ap
С	24	219.4	7.9	381	9	US-09-864-761-1172	Sequence 1172, Ap
	25	210.2	7.6	502	15	US-10-029-386-7461	Sequence 7461, Ap
	26	208.4	7.5	280	15	US-10-029-386-21161	Sequence 21161, A
	27	186.4	6.7	491	9	US-09-864-761-646	Sequence 646, App
	28	186.2	6.7	276	9	US-09-864-761-17437	Sequence 17437, A
	29 30	180 169	6.5 6.1	180 477	15 10	US-10-029-386-17706 US-09-918-995-2005	Sequence 17706, A
	31	164.2	5.9	459	9	US-09-864-761-102	Sequence 2005, Ap Sequence 102, App
	32	146.6	5.3	1132	16	US-10-369-493-30006	Sequence 30006, A
	33	108	3.9	1302	13	US-10-243-552-276	Sequence 276, App
С	34	95	3.4	151	9	US-09-864-761-17938	Sequence 17938, A
	35	91.4	3.3	1792	16	US-10-369-493-29835	Sequence 29835, A
	36	76.6	2.8	1617	9	US-09-938-842A-2591	Sequence 2591, Ap
	37	76.6	2.8	1617	11	US-09-938-842A-2591	Sequence 2591, Ap
	38	73.4	2.7	968	13	US-10-424-599-94222	Sequence 94222, A
	39	60	2.2	128	9	US-09-864-761-20736	Sequence 20736, A
С	40	60	2.2	136	15	US-10-029-386-23072	Sequence 23072, A
	41	60	2.2	467	9	US-09-864-761-3975	Sequence 3975, Ap
C	42	60	2.2	546	13	US-10-027-632-247268	Sequence 247268,
C	43	60 60	2.2	546	16	US-10-027-632-247268	Sequence 247268,
С	44 45	60 60	2.2	599	15	US-10-029-386-9372 US-10-027-632-100718	Sequence 9372, Ap
	45	60	2.2	1173	13	05-10-027-632-100718	Sequence 100718,

#### ALIGNMENTS

# RESULT 1 US-10-054-680-1

<sup>;</sup> Sequence 1, Application US/10054680; Publication No. US20020132998A1

<sup>;</sup> GENERAL INFORMATION:

```
APPLICANT: Friddle, Carl Johan
  APPLICANT: Hilbun, Erin
  TITLE OF INVENTION: No. US20020132998Alel Human Ion Exchanger Proteins and
Polynucleotides Encoding the
  TITLE OF INVENTION: Same
  FILE REFERENCE: LEX-0301-USA
  CURRENT APPLICATION NUMBER: US/10/054,680
  CURRENT FILING DATE: 2002-01-22
  PRIOR APPLICATION NUMBER: US 60/263,384
  PRIOR FILING DATE: 2001-01-23
  NUMBER OF SEQ ID NOS: 5
  SOFTWARE: FastSEQ for Windows Version 4.0
; SEQ ID NO 1
   LENGTH: 2766
   TYPE: DNA
   ORGANISM: homo sapiens
US-10-054-680-1
 Query Match
                    100.0%; Score 2766; DB 14; Length 2766;
 Best Local Similarity
                    100.0%; Pred. No. 0;
 Matches 2766; Conservative
                         0; Mismatches
                                        0; Indels
                                                   0;
                                                      Gaps
                                                             0;
         1 ATGGCGTGGTTAAGGTTGCAGCCTCTCACCTCTGCCTTCCTCCATTTTGGGCTGGTTACC 60
Qy
           1 ATGGCGTGGTTAAGGTTGCAGCCTCTCACCTCTGCCTTCCTCCATTTTGGGCTGGTTACC 60
Db
        61 TTTGTGCTCTTCCTGAATGGTCTTCGAGCAGAGGCTGGTGGCTCAGGGGACGTGCCAAGC 120
Qу
           61 TTTGTGCTCTTCCTGAATGGTCTTCGAGCAGAGGCTGGTGGCTCAGGGGACGTGCCAAGC 120
Db
       121 ACAGGGCAGAACAATGAGTCCTGTTCAGGGTCATCGGACTGCAAGGAGGGTGTCATCCTG 180
Qу
           121 ACAGGGCAGAACAATGAGTCCTGTTCAGGGTCATCGGACTGCAAGGAGGGTGTCATCCTG 180
Db
       181 CCAATCTGGTACCCGGAGAACCCTTCCCTTGGGGACAAGATTGCCAGGGTCATTGTCTAT 240
Qу
           181 CCAATCTGGTACCCGGAGAACCCTTCCCTTGGGGACAAGATTGCCAGGGTCATTGTCTAT 240
Db
       241 TTTGTGGCCCTGATATACATGTTCCTTGGGGTGTCCATCATTGCTGACCGCTTCATGGCA 300
Qy
           241 TTTGTGGCCCTGATATACATGTTCCTTGGGGTGTCCATCATTGCTGACCGCTTCATGGCA 300
Db
       301 TCTATTGAAGTCATCACCTCTCAAGAGAGGGGAGGTGACAATTAAGAAACCCAATGGAGAA 360
Qу
           301 TCTATTGAAGTCATCACCTCTCAAGAGAGGGGGGGTGACAATTAAGAAACCCAATGGAGAA 360
Db
       361 ACCAGCACAACCACTATTCGGGTCTGGAATGAAACTGTCTCCAACCTGACCCTTATGGCC 420
Qy
           361 ACCAGCACAACCACTATTCGGGTCTGGAATGAAACTGTCTCCAACCTGACCCTTATGGCC 420
Db
Qу
       421 CTGGGTTCCTCTGCTCCTGAGATACTCCTCTCTTTAATTGAGGTGTGTGGTCATGGGTTC 480
           Dh
       421 CTGGGTTCCTCTGCTCCTGAGATACTCCTCTTTAATTGAGGTGTGTGGTCATGGGTTC 480
        481 ATTGCTGGTGATCTGGGACCTTCTACCATTGTAGGGAGTGCAGCCTTCAACATGTTCATC 540
Qу
           481 ATTGCTGGTGATCTGGGACCTTCTACCATTGTAGGGAGTGCAGCCTTCAACATGTTCATC 540
Db
```

Qy Db		ATCATTGGCATCTGTGTCTACGTGATCCCAGACGGAGAGACTCGCAAGATCAAGCATCTA	
Qу	601	CGAGTCTTCTTCATCACCGCTGCTTGGAGTATCTTTGCCTACATCTGGCTCTATATGATT	660
Db	601		660
Qу	661	CTGGCAGTCTTCTCCCCTGGTGTGGTCCAGGTTTGGGAAGGCCTCCTCACTCTTCTTC	720
Db	661		720
Qу	721		780
Db	721	TTTCCAGTGTGTCCTTCTGGCCTGGGTGGCAGATAAACGACTGCTCTTCTACAAATAC	780
Qу	781	ATGCACAAAAGTACCGCACAGACAACACCGAGGAATTATCATAGAGACAGAGGGTGAC	840
Db	781	ATGCACAAAAAGTACCGCACAGACAAACACCGAGGAATTATCATAGAGACAGAGGGTGAC	840
QУ	841	CACCCTAAGGGCATTGAGATGGGGAAAATGATGAATTCCCATTTTCTAGATGGGAAC	900
Db	841	CACCCTAAGGGCATTGAGATGGGAAAATGATGAATTCCCATTTTCTAGATGGGAAC	900
QУ	901	CTGGTGCCCCTGGAAGGAAGGAAGTGGATGATCCCGCAGAGAGATGATCCCGGATTCTC	960
Db	901	CTGGTGCCCCTGGAAGGAAGGAAGTGGATGAGTCCCGCAGAGAGATGATCCGGATTCTC	960
Qу	961	AAGGATCTGAAGCAAAAACACCCAGAGAAGGACTTAGATCAGCTGGTGGAGATGGCCAAT	1020
Db	961	AAGGATCTGAAGCAAAAACACCCAGAGAAGGACTTAGATCAGCTGGTGGAGATGGCCAAT	1020
QУ	1021	TACTATGCTCTTTCCCACCAACAGAAGAGCCGCGCCTTCTACCGTATCCAAGCCACTCGT	1080
Db	1021	TACTATGCTCTTTCCCACCAACAGAAGAGCCGCGCCTTCTACCGTATCCAAGCCACTCGT	1080
Qу	1081	ATGATGACTGGTGCAGGCAATATCCTGAAGAAACATGCAGCAGAACAAGCCAAGAAGGCC	1140
Db	1081	ATGATGACTGGTGCAGGCAATATCCTGAAGAAACATGCAGCAGAACAAGCCAAGAAGGCC	1140
Qу	1141	TCCAGCATGAGCGAGGTGCACACCGATGAGCCTGAGGACTTTATTTCCAAGGTCTTCTTT	1200
Db	1141	TCCAGCATGAGCGAGGTGCACACCGATGAGCCTGAGGACTTTATTTCCAAGGTCTTCTTT	1200
Qу	1201	GACCCATGTTCTTACCAGTGCCTGGAGAACTGTGGGGGCTGTACTCCTGACAGTGGTGAGG	1260
Db	1201	GACCCATGTTCTTACCAGTGCCTGGAGAACTGTGGGGGCTGTACTCCTGACAGTGGTGAGG	1260
Qу	1261	AAAGGGGGAGACATGTCAAAGACCATGTATGTGGACTACAAAACAGAGGATGGTTCTGCC	1320
Db	1261	AAAGGGGGAGACATGTCAAAGACCATGTATGTGGACTACAAAACAGAGGATGGTTCTGCC	1320
Qу		AATGCAGGGGCTGACTATGAGTTCACAGAGGGCACGGTGGTTCTGAAGCCAGGAGAGACC	
Db	1321	AATGCAGGGGCTGACTATGAGTTCACAGAGGGCACGGTGGTTCTGAAGCCAGGAGAGACC	1380

.

,

	Qу	1381	CAGAAGGAGTTCTCCGTGGGCATAATTGATGACGACATTTTTGAGGAGGATGAACACTTC	1440
	Db	1381	CAGAAGGAGTTCTCCGTGGGCATAATTGATGACGACATTTTTGAGGAGGATGAACACTTC	1440
	Qу	1441	TTTGTAAGGTTGAGCAATGTCCGCATAGAGGAGGAGCAGCCAGAGGAGGGGATGCCTCCA	1500
	Db	1441	TTTGTAAGGTTGAGCAATGTCCGCATAGAGGAGGAGCAGCCAGAGGAGGGGGATGCCTCCA	1500
	Qy	1501	GCAATATTCAACAGTCTTCCCTTGCCTCGGGCTGTCCTAGCCTCCCCTTGTGTGGCCACA	1560
-	Db	1501		1560
	Qу	1561	GTTACCATCTTGGATGATGACCATGCAGGCATCTTCACTTTTGAATGTGATACTATTCAT	1620
	Db	1561		1620
	Qy	1621	GTCAGTGAGAGTATTGGTGTTATGGAGGTCAAGGTTCTGCGGACATCAGGTGCCCGGGGT	1680
	Db	1621	GTCAGTGAGAGTATTGGTGTTATGGAGGTCAAGGTTCTGCGGACATCAGGTGCCCGGGGT	1680
	Qy	1681	ACAGTCATCGTCCCCTTTAGGACAGTAGAAGGGACAGCCAAGGGTGGCGGTGAGGACTTT	1740
	Db	1681	ACAGTCATCGTCCCCTTTAGGACAGTAGAAGGGACAGCCAAGGGTGGCGGTGAGGACTTT	1740
	Qy	1741	GAAGACACATATGGGGAGTTGGAATTCAAGAATGATGAAAACTGTGAAAACCATAAGGGTT	1800
	Db	1741		1800
	Qу	1801	AAAATAGTAGATGAGGAGGAATACGAAAGGCAAGAGAATTTCTTCATTGCCCTTGGTGAA	1860
	Db	1801	AAAATAGTAGATGAGGAGGAATACGAAAGGCAAGAGAATTTCTTCATTGCCCTTGGTGAA	1860
	Qу	1861	CCGAAATGGATGGAACGTGGAATATCAGATGTGACAGACA	1920
	Db	1861	CCGAAATGGATGGAACGTGGAATATCAGATGTGACAGACA	1920
	Qy	1921	GAGGAGGCCAAGAGGATAGCAGAGATGGGAAAGCCAGTATTGGGTGAACACCCCAAACTA	1980
	Db	1921	GAGGAGGCCAAGAGGATAGCAGAGATGGGAAAGCCAGTATTGGGTGAACACCCCAAACTA	1980
	Qy	1981	GAAGTCATCATTGAAGAGTCCTATGAGTTCAAGACTACGGTGGACAAACTGATCAAGAAG	2040
	Db	1981	GAAGTCATCATTGAAGAGTCCTATGAGTTCAAGACTACGGTGGACAAACTGATCAAGAAG	2040
	Qy	2041	ACAAACCTGGCCTTGGTTGTGGGGACCCATTCCTGGAGGGACCAGTTCATGGAGGCCATC	2100
	Db	2041	ACAAACCTGGCCTTGGTTGTGGGGACCCATTCCTGGAGGGACCAGTTCATGGAGGCCATC	2100
	Qу	2101	ACCGTCAGTGCAGCAGGGGATGAGGATGAGTGAATCCGGGGAGGAGAGGCTGCCCTCC	2160
	Db	2101	ACCGTCAGTGCAGCAGGGATGAGGATGAATCCGGGGAGGAGGAGGCTGCCCTCC	2160
	Qy	2161	TGCTTTGACTACGTCATGCACTTCCTGACTGTCTTCTGGAAGGTGCTGTTTTGCCTGTGTG	2220
	Db	2161	TGCTTTGACTACGTCATGCACTTCCTGACTGTCTTCTGGAAGGTGCTGTTTGCCTGTGTG	2220
	Ov	2221	CCCCCCACAGAGTACTGCCACGGCTGGGCCTGCTTCGCCGTCTCCATCCTCATCATTGGC	2280

Db	2221	
Qу	2281	ATGCTCACCGCCATCATTGGGGACCTGGCCTCGCACTTCGGCTGCACCATTGGTCTCAAA 2340
Db	2281	ATGCTCACCGCCATCATTGGGGACCTGGCCTCGCACTTCGGCTGCACCATTGGTCTCAAA 2340
Qy		GATTCAGTCACAGCTGTTGTTTTCGTGGCATTTGGCACCTCTGTCCCAGATACGTTTGCC 2400
Db		GATTCAGTCACAGCTGTTGTTTTCGTGGCATTTGGCACCTCTGTCCCAGATACGTTTGCC 2400
Qy		AGCAAAGCTGCTGCCCTCCAGGATGTATATGCAGACGCCTCCATTGGCAACGTGACGGGC 2460
Db		AGCAAAGCTGCCCTCCAGGATGTATATGCAGACGCCTCCATTGGCAACGTGACGGGC 2460
Qу		AGCAACGCCGTCAATGTCTTCCTGGGCATCGGCCTGGCCTGGTCCGTGGCCGCCATCTAC 2520
Db		AGCAACGCCGTCAATGTCTTCCTGGGCATCGGCCTGGCCTGGTCCGTGGCCGCCATCTAC 2520 TGGGCTCTGCAGGGACAGGAGTTCCACGTGTCGGCCGGCACACTGGCCTTCTCCGTCACC 2580
Qy Db		TGGGCTCTGCAGGGACAGGAGTTCCACGTGTCGGCCGGCACACTGGCCTTCTCCGTCACC 2580
Qy		CTCTTCACCATCTTTGCATTTGTCTGCATCAGCGTGCTCTTGTACCGAAGGCGGCCGCAC 2640
Db		
Qy	2641	CTGGGAGGGGAGCTTGGTGGCCCCCGTGGCTGCAAGCTCGCCACAACATGGCTCTTTGTG 2700
Db	2641	
Qу	2701	AGCCTGTGGCTCCTCTACATACTCTTTGCCACACTAGAGGCCTATTGCTACATCAAGGGG 2760
Db	2701	
Qу	2761	TTCTAA 2766
Db	2761	TTCTAA 2766

#### RESULT 2

```
US-10-054-680-5
```

- ; Sequence 5, Application US/10054680
- ; Publication No. US20020132998A1
- ; GENERAL INFORMATION:
- ; APPLICANT: Friddle, Carl Johan
- ; APPLICANT: Hilbun, Erin
- ; TITLE OF INVENTION: No. US20020132998Alel Human Ion Exchanger Proteins and Polynucleotides Encoding the
- ; TITLE OF INVENTION: Same
- ; FILE REFERENCE: LEX-0301-USA
- ; CURRENT APPLICATION NUMBER: US/10/054,680
- ; CURRENT FILING DATE: 2002-01-22
- ; PRIOR APPLICATION NUMBER: US 60/263,384
- ; PRIOR FILING DATE: 2001-01-23
- ; NUMBER OF SEQ ID NOS: 5
- ; SOFTWARE: FastSEQ for Windows Version 4.0

```
SEQ ID NO 5
   LENGTH: 3812
   TYPE: DNA
   ORGANISM: homo sapiens
US-10-054-680-5
 Query Match
                   100.0%;
                          Score 2766;
                                   DB 14; Length 3812;
 Best Local Similarity
                   100.0%; Pred. No. 0;
 Matches 2766; Conservative
                                                         0;
                        0;
                           Mismatches
                                      0;
                                        Indels
                                                0;
                                                   Gaps
         1 ATGGCGTGGTTAAGGTTGCAGCCTCTCACCTCTGCCTTCCTCCATTTTGGGCTGGTTACC 60
Qу
          618 ATGGCGTGGTTAAGGTTGCAGCCTCTCACCTCTGCCTTCCTCCATTTTGGGCTGGTTACC 677
Db
        61 TTTGTGCTCTTCCTGAATGGTCTTCGAGCAGAGGCTGGTGGCTCAGGGGACGTGCCAAGC 120
Qу
          678 TTTGTGCTCTTCCTGAATGGTCTTCGAGCAGAGGCTGGTGGCTCAGGGGACGTGCCAAGC 737
Db
       121 ACAGGGCAGAACAATGAGTCCTGTTCAGGGTCATCGGACTGCAAGGAGGGTGTCATCCTG 180
Qy
          738 ACAGGGCAGAACAATGAGTCCTGTTCAGGGTCATCGGACTGCAAGGAGGGTGTCATCCTG 797
Db
       181 CCAATCTGGTACCCGGAGAACCCTTCCCTTGGGGACAAGATTGCCAGGGTCATTGTCTAT 240
Qу
          798 CCAATCTGGTACCCGGAGAACCCTTCCCTTGGGGACAAGATTGCCAGGGTCATTGTCTAT 857
Db
       241 TTTGTGGCCCTGATATACATGTTCCTTGGGGTGTCCATCATTGCTGACCGCTTCATGGCA 300
Qу
          858 TTTGTGGCCCTGATATACATGTTCCTTGGGGTGTCCATCATTGCTGACCGCTTCATGGCA 917
Db
       301 TCTATTGAAGTCATCACCTCTCAAGAGAGGGGAGGTGACAATTAAGAAACCCAATGGAGAA 360
Qу
          918 TCTATTGAAGTCATCACCTCTCAAGAGAGGGAGGTGACAATTAAGAAACCCAATGGAGAA 977
Db
       361 ACCAGCACACCACTATTCGGGTCTGGAATGAAACTGTCTCCAACCTGACCCTTATGGCC 420
Qу
          978 ACCAGCACACCACTATTCGGGTCTGGAATGAAACTGTCTCCAACCTGACCCTTATGGCC 1037
Db
       421 CTGGGTTCCTCTGCTCCTGAGATACTCCTCTCTTTAATTGAGGTGTGTGGTCATGGGTTC 480
Qу
          1038 CTGGGTTCCTCTGCTCCTGAGATACTCCTCTCTTTAATTGAGGTGTGTGGTCATGGGTTC 1097
Db
       481 ATTGCTGGTGATCTGGGACCTTCTACCATTGTAGGGAGTGCAGCCTTCAACATGTTCATC 540
Qу
          1098 ATTGCTGGTGATCTGGGACCTTCTACCATTGTAGGGAGTGCAGCCTTCAACATGTTCATC 1157
Db
       541 ATCATTGGCATCTGTGTCTACGTGATCCCAGACGGAGAGACTCGCAAGATCAAGCATCTA 600
Qу
          1158 ATCATTGGCATCTGTGTCTACGTGATCCCAGACGGAGAGACTCGCAAGATCAAGCATCTA 1217
Db
       601 CGAGTCTTCTTCATCACCGCTGCTTGGAGTATCTTTGCCTACATCTGGCTCTATATGATT 660
Qy
          1218 CGAGTCTTCTTCATCACCGCTGCTTGGAGTATCTTTGCCTACATCTGGCTCTATATGATT 1277
Db
```

661 CTGGCAGTCTTCTCCCCTGGTGTGGTCCAGGTTTGGGAAGGCCTCCTCACTCTCTTCTTC 720

Qу

Db

Qγ	721	TTTCCAGTGTGTCTCTGGCCTGGGTGGCAGATAAACGACTGCTCTTCTACAAATAC	780
Db	1338		1397
Qу	781	ATGCACAAAAAGTACCGCACAGACAAACACCGAGGAATTATCATAGAGACAGAGGGTGAC	840
Db	1398	ATGCACAAAAAGTACCGCACAGACAAACACCGAGGAATTATCATAGAGACAGAGGGTGAC	1457
Qу	841	CACCCTAAGGGCATTGAGATGGGAAAATGATGAATTCCCATTTTCTAGATGGGAAC	900
Db	1458	CACCCTAAGGGCATTGAGATGGATGGGAAAATGATGAATTCCCATTTTCTAGATGGGAAC	1517
Qу	901	CTGGTGCCCCTGGAAGGAAGGAAGTGGATGAGTCCCGCAGAGAGATGATCCGGATTCTC	960
Db	1518		1577
Qу	961	AAGGATCTGAAGCAAAAACACCCAGAGAAGGACTTAGATCAGCTGGTGGAGATGGCCAAT	1020
Db	1578	AAGGATCTGAAGCAAAAACACCCAGAGAAGGACTTAGATCAGCTGGTGGAGATGGCCAAT	1637
Qу	1021	TACTATGCTCTTTCCCACCAACAGAAGAGCCGCGCCTTCTACCGTATCCAAGCCACTCGT	1080
Db	1638		1697
Qу	1081	ATGATGACTGGTGCAGGCAATATCCTGAAGAAACATGCAGCAGAACAAGCCAAGAAGGCC	1140
Db	1698	ATGATGACTGGTGCAGGCAATATCCTGAAGAAACATGCAGCAGAACAAGCCAAGAAGGCC	1757
Qу	1141	TCCAGCATGAGCGAGGTGCACACCGATGAGCCTGAGGACTTTATTTCCAAGGTCTTCTTT	1200
Db	1758		1817
Qу	1201	GACCCATGTTCTTACCAGTGCCTGGAGAACTGTGGGGCTGTACTCCTGACAGTGGTGAGG	1260
Db	1818	GACCCATGTTCTTACCAGTGCCTGGAGAACTGTGGGGGCTGTACTCCTGACAGTGGTGAGG	1877
Qу	1261	AAAGGGGGAGACATGTCAAAGACCATGTATGTGGACTACAAAACAGAGGATGGTTCTGCC	1320
Db	1878		1937
Qу	1321	AATGCAGGGGCTGACTATGAGTTCACAGAGGGCACGGTGGTTCTGAAGCCAGGAGAGACC	1380
Db	1938	AATGCAGGGGCTGACTATGAGTTCACAGAGGGCACGGTGGTTCTGAAGCCAGGAGAGACC	1997
Qу	1381	CAGAAGGAGTTCTCCGTGGGCATAATTGATGACGACATTTTTGAGGAGGATGAACACTTC	1440
Db	1998	CAGAAGGAGTTCTCCGTGGGCATAATTGATGACGACATTTTTGAGGAGGATGAACACTTC	2057
Qу	1441	TTTGTAAGGTTGAGCAATGTCCGCATAGAGGAGGAGCAGCCAGAGGAGGAGGGATGCCTCCA	1500
Db	2058	TTTGTAAGGTTGAGCAATGTCCGCATAGAGGAGGAGCAGCCAGAGGAGGAGGATGCCTCCA	2117
Qy	1501	GCAATATTCAACAGTCTTCCCTTGCCTCGGGCTGTCCTAGCCTCCCCTTGTGTGGCCACA	1560
Db	2118		2177

Qу	1561	GTTACCATCTTGGATGATGACCATGCAGGCATCTTCACTTTTGAATGTGATACTATTCAT	1620
Db	2178	GTTACCATCTTGGATGATGACCATGCAGGCATCTTCACTTTTGAATGTGATACTATTCAT	2237
Qу	1621	GTCAGTGAGAGTATTGGTGTTATGGAGGTCAAGGTTCTGCGGACATCAGGTGCCCGGGGT	1680
Db	2238	GTCAGTGAGAGTATTGGTGTTATGGAGGTCAAGGTTCTGCGGACATCAGGTGCCCGGGGT	2297
Qу	1681	ACAGTCATCGTCCCCTTTAGGACAGTAGAAGGGACAGCCAAGGGTGGCGGTGAGGACTTT	1740
Db	2298	ACAGTCATCGTCCCCTTTAGGACAGTAGAAGGGACAGCCAAGGGTGGCGGTGAGGACTTT	2357
Qу	1741	GAAGACACATATGGGGAGTTGGAATTCAAGAATGATGAAAACTGTGAAAACCATAAGGGTT	1800
Db	2358	GAAGACACATATGGGGAGTTGGAATTCAAGAATGATGAAAACTGTGAAAACCATAAGGGTT	2417
Qy	1801	AAAATAGTAGATGAGGAGGAATACGAAAGGCAAGAGAATTTCTTCATTGCCCTTGGTGAA	1860
Db	2418	AAAATAGTAGATGAGGAGAATACGAAAGGCAAGAGAATTTCTTCATTGCCCTTGGTGAA	2477
.Qy	1861	CCGAAATGGATGGAACGTGGAATATCAGATGTGACAGACA	1920
Db	2478	CCGAAATGGATGGAACGTGGAATATCAGATGTGACAGACA	2537
Qу	1921	GAGGAGGCCAAGAGGATAGCAGAGATGGGAAAGCCAGTATTGGGTGAACACCCCAAACTA	1980
Db	2538	GAGGAGGCCAAGAGGATAGCAGAGATGGGAAAGCCAGTATTGGGTGAACACCCCAAACTA	2597
Qу	1981	GAAGTCATCATTGAAGAGTCCTATGAGTTCAAGACTACGGTGGACAAACTGATCAAGAAG	2040
Db	2598	GAAGTCATCATTGAAGAGTCCTATGAGTTCAAGACTACGGTGGACAAACTGATCAAGAAG	2657
Qу	2041	ACAAACCTGGCCTTGGTTGTGGGGACCCATTCCTGGAGGGACCAGTTCATGGAGGCCATC	2100
Db	2658	ACAAACCTGGCCTTGGTTGTGGGGACCCATTCCTGGAGGGACCAGTTCATGGAGGCCATC	2717
Qу	2101	ACCGTCAGTGCAGCAGGGGATGAGGATGAGTGAATCCGGGGAGGAGGAGGCTGCCCTCC	2160
Db	2718	ACCGTCAGTGCAGCAGGGGATGAGGATGAATCCGGGGAGGAGGAGGCTGCCCTCC	2777
Qу	2161	TGCTTTGACTACGTCATGCACTTCCTGACTGTCTTCTGGAAGGTGCTGTTTGCCTGTGTG	2220
Db	2778	TGCTTTGACTACGTCATGCACTTCCTGACTGTCTTCTGGAAGGTGCTGTTTGCCTGTGTG	2837
Qу	2221	CCCCCACAGAGTACTGCCACGGCTGGGCCTGCTTCGCCGTCTCCATCCTCATCATTGGC	2280
Db	2838	CCCCCACAGAGTACTGCCACGGCTGGGCCTGCTTCGCCGTCTCCATCCTCATCATTGGC	2897
Qу	2281	ATGCTCACCGCCATCATTGGGGACCTGGCCTCGCACTTCGGCTGCACCATTGGTCTCAAA	2340
Db	2898	ATGCTCACCGCCATCATTGGGGACCTGGCCTCGCACTTCGGCTGCACCATTGGTCTCAAA	2957
Qу	2341	GATTCAGTCACAGCTGTTGTTTTCGTGGCATTTGGCACCTCTGTCCCAGATACGTTTGCC	2400
Db	2958	GATTCAGTCACAGCTGTTGTTTTCGTGGCATTTGGCACCTCTGTCCCAGATACGTTTGCC	3017
Qy	2401	AGCAAAGCTGCTCCCAGGATGTATATGCAGACGCCTCCATTGGCAACGTGACGGGC	2460

```
3018 AGCAAAGCTGCCCTCCAGGATGTATATGCAGACGCCTCCATTGGCAACGTGACGGGC 3077
Db
Qy
       2461 AGCAACGCCGTCAATGTCTTCCTGGGCATCGGCCTGGCCTGGTCCGTGGCCGCCATCTAC 2520
           3078 AGCAACGCCGTCAATGTCTTCCTGGGCATCGGCCTGGCCTGGTCCGTGGCCGCCATCTAC 3137
Db
       2521 TGGGCTCTGCAGGGACAGGAGTTCCACGTGTCGGCCGGCACACTGGCCTTCTCCGTCACC 2580
Qy
           3138 TGGGCTCTGCAGGGACAGGAGTTCCACGTGTCGGCCGGCACACTGGCCTTCTCCGTCACC 3197
Db
       2581 CTCTTCACCATCTTTGCATTTGTCTGCATCAGCGTGCTCTTGTACCGAAGGCGGCCGCAC 2640
Qу
           3198 CTCTTCACCATCTTTGCATTTGTCTGCATCAGCGTGCTCTTGTACCGAAGGCGGCCGCAC 3257
Db
       2641 CTGGGAGGGGAGCTTGGTGGCCCCCGTGGCTGCAAGCTCGCCACAACATGGCTCTTTGTG 2700
Qy
           3258 CTGGGAGGGGAGCTTGGTGGCCCCCGTGGCTGCAAGCTCGCCACAACATGGCTCTTTGTG 3317
Db
       2701 AGCCTGTGGCTCCTCTACATACTCTTTGCCACACTAGAGGCCTATTGCTACATCAAGGGG 2760
Qy
           3318 AGCCTGTGGCTCCTCTACATACTCTTTGCCACACTAGAGGCCTATTGCTACATCAAGGGG 3377
Db
       2761 TTCTAA 2766
Qу
           3378 TTCTAA 3383
Db
RESULT 3
US-09-804-474A-1
; Sequence 1, Application US/09804474A
; Patent No. US20020119518A1
; GENERAL INFORMATION:
  APPLICANT: KODET, Stefan et al
  TITLE OF INVENTION: ISOLATED HUMAN TRANSPORTER PROTEINS,
  TITLE OF INVENTION: NUCLEIC ACID MOLECULES ENCODING HUMAN TRANSPORTER
PROTEINS,
  TITLE OF INVENTION: AND USES THEREOF
  FILE REFERENCE: CL000891
  CURRENT APPLICATION NUMBER: US/09/804,474A
  CURRENT FILING DATE: 2001-03-13
  NUMBER OF SEQ ID NOS: 4
  SOFTWARE: FastSEQ for Windows Version 4.0
; SEO ID NO 1
   LENGTH: 2782
   TYPE: DNA
   ORGANISM: Human
US-09-804-474A-1
 Query Match
                     99.8%;
                           Score 2761.2; DB 9; Length 2782;
 Best Local Similarity
                    99.9%;
                           Pred. No. 0;
 Matches 2763; Conservative
                          0; Mismatches
                                                              0;
                                         3; Indels
                                                    0;
                                                       Gaps
         1 ATGGCGTGGTTAAGGTTGCAGCCTCTCACCTCTGCCTTCCTCCATTTTGGGCTGGTTACC 60
Qу
           10 ATGGCGTGGTTAAGGTTGCAGCCTCTCACCTCTGCCTTCCTCCATTTTGGGCTGGTTACC 69
Db
```

	Qу	61	$\tt TTTGTGCTCTTCCTGAATGGTCTTCGAGCAGAGGCTGGTGGCTCAGGGGACGTGCCAAGC$	120
	Db	70	TTTGTGCTCTTCCTGAATGGTCTTCGAGCAGAGGCTGGTGGCTCAGGGGACGTGCCAAGC	129
	Qу	121	ACAGGGCAGAACAATGAGTCCTGTTCAGGGTCATCGGACTGCAAGGAGGGTGTCATCCTG	180
	Db	130	ACAGGGCAGAACAATGAGTCCTGTTCAGGGTCATCGGACTGCAAGGAGGGTGTCATCCTG	189
	Qу	181	CCAATCTGGTACCCGGAGAACCCTTCCCTTGGGGACAAGATTGCCAGGGTCATTGTCTAT	240
	Db	190	CCAATCTGGTACCCGGAGAACCCTTCCCTTGGGGACAAGATTGCCAGGGTCATTGTCTAT	249
	Qу	241	TTTGTGGCCCTGATATACATGTTCCTTGGGGTGTCCATCATTGCTGACCGCTTCATGGCA	300
	Db	250	TTTGTGGCCCTGATATACATGTTCCTTGGGGTGTCCATCATTGCTGACCGCTTCATGGCA	309
	Qу	301	TCTATTGAAGTCATCACCTCTCAAGAGAGGGAGGTGACAATTAAGAAACCCAATGGAGAA	360
	Db	310	TCTATTGAAGTCATCACCTCTCAAGAGAGGGGAGGTGACAATTAAGAAACCCAATGGAGAA	369
	Qy	361	ACCAGCACAACCACTATTCGGGTCTGGAATGAAACTGTCTCCAACCTGACCCTTATGGCC	420
	Db	370	ACCAGCACAACCACTATTCGGGTCTGGAATGAAACTGTCTCCAACCTGACCCTTATGGCC	429
	Qy	421	CTGGGTTCCTCTGAGATACTCCTCTCTTTAATTGAGGTGTGTGGTCATGGGTTC	480
	Db	430	CTGGGTTCCTCTGAGATACTCCTCTTTTAATTGAGGTGTGTGGTCATGGGTTC	489
	Qy	481	ATTGCTGGTGATCTGGGACCTTCTACCATTGTAGGGAGTGCAGCCTTCAACATGTTCATC	540
	Db	490	ATTGCTGGTGATCTGGGACCTTCTACCATTGTAGGGAGTGCAGCCTTCAACATGTTCATC	549
	Qy	541	ATCATTGGCATCTGTGTCTACGTGATCCCAGACGGAGAGACTCGCAAGATCAAGCATCTA	600
	Db	550	ATCATTGGCATCTGTGTCTACGTGATCCCAGACGGAGAGACTCGCAAGATCAAGCATCTA	609
	QУ	601	CGAGTCTTCTTCATCACCGCTGCTTGGAGTATCTTTGCCTACATCTGGCTCTATATGATT	660
	Db	610	CGAGTCTTCTTCATCACCGCTGCTTGGAGTATCTTTGCCTACATCTGGCTCTATATGATT	669
	QУ	661	CTGGCAGTCTTCTCCCCTGGTGTGGTCCAGGTTTGGGAAGGCCTCCTCACTCTCTTCTTC	720
	Db	670	CTGGCAGTCTTCTCCCCTGGTGTGGTCCAGGTTTGGGAAGGCCTCCTCACTCTTCTTC	729
	QУ	721	TTTCCAGTGTGTCCTTCTGGCCTGGGTGGCAGATAAACGACTGCTCTTCTACAAATAC	780
	Db	730	TTTCCAGTGTGTCCTTCTGGCCTGGGTGGCAGATAAACGACTGCTCTTCTACAAATAC	789
	Qу		ATGCACAAAAGTACCGCACAGACAACACCGAGGAATTATCATAGAGACAGAGGGTGAC	840
	Db		ATGCACAAAAGTACCGCACAGACAAACACCGAGGAATTATCATAGAGACAGAGGGTGAC	849
•	QУ	841	CACCCTAAGGGCATTGAGATGGGTGGGAAAATGATGATTCCCATTTTCTAGATGGGAAC	900
	Db	850	CACCCTAAGGGCATTGAGATGGGAAAATGATGAATTCCCATTTTCTAGATGGGAAC	909
	Ov	901	CTGGTGCCCCTGGAAGGGAAGGAAGTGGATGAGTCCCGCAGAGAGATGATCCGGATTCTC	960

Db	910	CTGGTGCCCCTGGAAGGGAAGGAAGTGGATGAGTCCCGCAGAGAGATGATCCGGATCCTC	969
Qy	961	AAGGATCTGAAGCAAAAACACCCAGAGAAGGACTTAGATCAGCTGGTGGAGATGGCCAAT	1020
Db	970	AAGGATCTGAAGCAAAAACACCCAGAGAAGGACTTAGATCAGCTGGTGGAGATGGCCAAT	1029
Qу	1021	TACTATGCTCTTTCCCACCAACAGAAGAGCCGCGCCTTCTACCGTATCCAAGCCACTCGT	1080
Db	1030	TACTATGCTCTTTCCCACCAACAGAAGAGCCGCGCCTTCTACCGTATCCAAGCCACTCGT	1089
Qy .	1081	ATGATGACTGGTGCAGGCAATATCCTGAAGAAACATGCAGCAGAACAAGCCAAGAAGGCC	1140
Db	1090		1149
Qу	1141	TCCAGCATGAGCGAGGTGCACACCGATGAGCCTGAGGACTTTATTTCCAAGGTCTTCTTT	1200
Db	1150	TCCAGCATGAGCGAGGTGCACACCGATGAGCCTGAGGACTTTATTTCCAAGGTCTTCTTT	1209
Qу	1201	GACCCATGTTCTTACCAGTGCCTGGAGAACTGTGGGGGCTGTACTCCTGACAGTGGTGAGG	1260
Db	1210		1269
Qу	1261	AAAGGGGGAGACATGTCAAAGACCATGTATGTGGACTACAAAACAGAGGATGGTTCTGCC	1320
Db	1270		1329
Qy	1321	AATGCAGGGGCTGACTATGAGTTCACAGAGGGCACGGTGGTTCTGAAGCCAGGAGAGACC	1380
Db	1330		1389
Qу	1381	CAGAAGGAGTTCTCCGTGGGCATAATTGATGACGACATTTTTGAGGAGGATGAACACTTC	1440
Db	1390	CAGAAGGAGTTCTCCGTGGGCATAATTGATGACGACATTTTTGAGGAGGATGAACACTTC	1449
Qу	1441	TTTGTAAGGTTGAGCAATGTCCGCATAGAGGAGGAGCAGCCAGAGGAGGAGGGATGCCTCCA	1500
Db	1450	TTTGTAAGGTTGAGCAATGTCCGCATAGAGGAGGAGCAGCCAGAGGAGGAGGATGCCTCCA	1509
QУ	1501	GCAATATTCAACAGTCTTCCCTTGCCTCGGGCTGTCCTAGCCTCCCCTTGTGTGGCCACA	1560
Db	1510	GCAATATTCAACAGTCTTCCCTTGCCTCGGGCTGTCCTAGCCTCCCCTTGTGTGGCCACA	1569
QУ	1561	GTTACCATCTTGGATGATGACCATGCAGGCATCTTCACTTTTGAATGTGATACTATTCAT	1620
Db	1570	GTTACCATCTTGGATGATGACCATGCAGGCATCTTCACTTTTGAATGTGATACTATTCAT	1629
Qу	1621	GTCAGTGAGAGTATTGGTGTTATGGAGGTCAAGGTTCTGCGGACATCAGGTGCCCGGGGT	1680
Db	1630	GTCAGTGAGAGTATTGGTGTTATGGAGGTCAAGGTTCTGCGGACATCAGGTGCCCGGGGT	1689
Qy	1681	ACAGTCATCGTCCCCTTTAGGACAGTAGAAGGGACAGCCAAGGGTGGCGGTGAGGACTTT	1740
Db	1690		1749
Qу	1741	GAAGACACATATGGGGAGTTGGAATTCAAGAATGATGAAAACTGTGAAAACCATAAGGGTT	1800

Db 17	750	GAAGACACATATGGGGAGTTGGAATTCAAGAATGATGAAAACTGTGAAAAACCATAAGGGTT	1809
Qy 18		AAAATAGTAGATGAGGAGAATACGAAAGGCAAGAGAATTTCTTCATTGCCCTTGGTGAA	1860
Db 18	810	AAAATAGTAGATGAGGAGGAATACGAAAGGCAAGAGAATTTCTTCATTGCCCTTGGTGAA	1869
Qy 18		CCGAAATGGATGGAACGTGGAATATCAGATGTGACAGACA	1920
Db 18		CCGAAATGGATGGAACGTGGAATATCAGATGTGACAGACA	1929
Qy 19		GAGGAGGCCAAGAGGATAGCAGAGATGGGAAAGCCAGTATTGGGTGAACACCCCAAACTA	1980
Db 19		GAGGAGGCCAAGAGATAGCAGAGATGGGAAAGCCAGTATTGGGTGAACACCCCAAACTG	1989
Qy 19		GAAGTCATCATTGAAGAGTCCTATGAGTTCAAGACTACGGTGGACAAACTGATCAAGAAG	2040
Db 19		GAAGTCATCATTGAAGAGTCCTATGAGTTCAAGACTACGGTGGACAAACTGATCAAGAAG	2049
Qy 20		ACAAACCTGGCCTTGGTTGTGGGGACCCATTCCTGGAGGGACCAGTTCATGGAGGCCATC	2100
Db 20		ACAAACCTGGCCTTGGTTGTGGGGACCCATTCCTGGAGGGACCAGTTCATGGAGGCCATC	2109
Qy 21		ACCGTCAGTGCAGCAGGGGATGAGGATGAGGATGAATCCGGGGAGGAGGAGGCTGCCCTCC	2160
Db 21		ACCGTCAGTGCAGCAGGGATGAGGATGAATCCGGGGAGGAGAGGCTGCCCTCC	2169
Qy 21		TGCTTTGACTACGTCATGCACTTCCTGACTGTCTTCTGGAAGGTGCTGTTTGCCTGTGTG	2220
Db 21		TGCTTTGACTACGTCATGCACTTCCTGACTGTCTTCTGGAAGGTGCTGTTTGCCTGTGTG	2229
. Qy 22		CCCCCACAGAGTACTGCCACGGCTGGGCCTGCTTCGCCGTCTCCATCCTCATCATTGGC	2280
Db 22		CCCCCACAGAGTACTGCCACGGCTGGGCCTGCTTCGCCGTCTCCATCATCATTGGC	2289
Qy 22		ATGCTCACCGCCATCATTGGGGACCTGGCCTCGCACTTCGGCTGCACCATTGGTCTCAAA	2340
Db 22		ATGCTCACCGCCATCATTGGGGACCTGGCCTCGCACTTCGGCTGCACCATTGGTCTCAAA	2349
Qy 23		GATTCAGTCACAGCTGTTGTTTTCGTGGCATTTGGCACCTCTGTCCCAGATACGTTTGCC	2400
Db 23		GATTCGGTCACAGCTGTTGTTTTCGTGGCATTTGGCACCTCTGTCCCAGATACGTTTGCC	2409
Qy 24		AGCAAAGCTGCTCCCTCCAGGATGTATATGCAGACGCCTCCATTGGCAACGTGACGGGC	2460
Db 24		AGCAAAGCTGCCCTCCAGGATGTATATGCAGACGCCTCCATTGGCAACGTGACGGGC	2469
Qy 24		AGCAACGCCGTCAATGTCTTCCTGGGCATCGGCCTGGCCTGGTCCGTGGCCGCCATCTAC	2520
Db 24		AGCAACGCCGTCAATGTCTTCCTGGGCATCGGCCTGGCCTGGTCCGTGGCCGCCATCTAC	2529
Qy 25		TGGGCTCTGCAGGGACAGGAGTTCCACGTGTCGGCCGGCACACTGGCCTTCTCCGTCACC	2580
Db 25		TGGGCTCTGCAGGGACAGGAGTTCCACGTGTCGGCCGGCACACTGGCCTTCTCCGTCACC	2589
Qy 25		CTCTTCACCATCTTTGCATTTGTCTGCATCAGCGTGCTCTTGTACCGAAGGCGGCCGCAC	2640
Db 25		CTCTTCACCATCTTTGCATTTGTCTGCATCAGCGTGCTCTTGTACCGAAGGCGGCCGCAC	2649

```
2641 CTGGGAGGGGAGCTTGGTGGCCCCCGTGGCTGCAAGCTCGCCACAACATGGCTCTTTGTG 2700
Qу
           Db
       2650 CTGGGAGGGGAGCTTGGTGGCCCCCGTGGCTGCAAGCTCGCCACAACATGGCTCTTTGTG 2709
       2701 AGCCTGTGGCTCCTCTACATACTCTTTGCCACACTAGAGGCCTATTGCTACATCAAGGGG 2760
Qу
           Db
       2710 AGCCTGTGGCTCCTCTACATACTCTTTGCCACACTAGAGGCCTATTGCTACATCAAGGGG 2769
Qу
       2761 TTCTAA 2766
           +111111
Db
       2770 TTCTAA 2775
RESULT 4
US-10-275-116-1
; Sequence 1, Application US/10275116
; Publication No. US20030096312A1
; GENERAL INFORMATION:
  APPLICANT: Merck Patent GmbH
  TITLE OF INVENTION: No. US20030096312A1el natrium-calium exchanger protein
  FILE REFERENCE: HNCX3CWWS
  CURRENT APPLICATION NUMBER: US/10/275,116
  CURRENT FILING DATE: 2002-11-01
                                W/20101
  NUMBER OF SEO ID NOS: 2
  SOFTWARE: PatentIn Ver. 2.1
; SEQ ID NO 1
   LENGTH: 2781
   TYPE: DNA
   ORGANISM: Homo sapiens
   FEATURE:
   NAME/KEY: CDS
   LOCATION: (1)..(2781)
US-10-275-116-1
 Query Match
                     98.8%; Score 2733.4; DB 15; Length 2781;
 Best Local Similarity
                     99.3%; Pred. No. 0;
 Matches 2762; Conservative
                          0; Mismatches
                                         1; Indels
                                                   18; Gaps
                                                              1;
         1 ATGGCGTGGTTAAGGTTGCAGCCTCTCACCTCTGCCTTCCTCCATTTTGGGCTGGTTACC 60
QУ
           1 ATGGCGTGGTTAAGGTTGCAGCCTCTCACCTCTGCCTTCCTCCATTTTGGGCTGGTTACC 60
Db
         61 TTTGTGCTCTTCCTGAATGGTCTTCGAGCAGAGGCTGGTGGCTCAGGGGACGTGCCAAGC 120
Qy
           61 TTTGTGCTCTTCCTGAATGGTCTTCGAGCAGGGCTGGTGGCTCAGGGGACGTGCCAAGC 120
Db
        121 ACAGGGCAGAACAATGAGTCCTGTTCAGGGTCATCGGACTGCAAGGAGGGTGTCATCCTG 180
Qу
           121 ACAGGGCAGAACAATGAGTCCTGTTCAGGGTCATCGGACTGCAAGGAGGGTGTCATCCTG 180
Db
        181 CCAATCTGGTACCCGGAGAACCCTTCCCTTGGGGACAAGATTGCCAGGGTCATTGTCTAT 240
Qу
           Db
        181 CCAATCTGGTACCCGGAGAACCCTTCCCTTGGGGACAAGATTGCCAGGGTCATTGTCTAT 240
        241 TTTGTGGCCCTGATATACATGTTCCTTGGGGTGTCCATCATTGCTGACCGCTTCATGGCA 300
Qу
```

Db	241	TTTGTGGCCCTGATATACATGTTCCTTGGGGTGTCCATCATTGCTGACCGCTTCATGGCA	300
Qy	301	TCTATTGAAGTCATCACCTCTCAAGAGAGGGGAGGTGACAATTAAGAAACCCAATGGAGAA	360
Db	301	TCTATTGAAGTCATCACCTCTCAAGAGAGGGGAGGTGACAATTAAGAAACCCAATGGAGAA	360
Qу	361	ACCAGCACAACCACTATTCGGGTCTGGAATGAAACTGTCTCCAACCTGACCCTTATGGCC	420
Db	361	ACCAGCACAACCACTATTCGGGTCTGGAATGAAACTGTCTCCAACCTGACCCTTATGGCC	420
Qy	421	CTGGGTTCCTCTGAGATACTCCTCTCTTTAATTGAGGTGTGTGGTCATGGGTTC	480
Db	421	CTGGGTTCCTCTGAGATACTCCTCTTTAATTGAGGTGTGTGGTCATGGGTTC	480
Qу	481	ATTGCTGGTGATCTGGGACCTTCTACCATTGTAGGGAGTGCAGCCTTCAACATGTTCATC	540
Db	481		540
Qy	541	ATCATTGGCATCTGTGTCTACGTGATCCCAGACGGAGAGACTCGCAAGATCAAGCATCTA	600
Db	541	ATCATTGGCATCTGTGTCTACGTGATCCCAGACGGAGAGACTCGCAAGATCAAGCATCTA	600
Qу	601	CGAGTCTTCTTCATCACCGCTGCTTGGAGTATCTTTGCCTACATCTGGCTCTATATGATT	660
Db	601	CGAGTCTTCTTCATCACCGCTGCTTGGAGTATCTTTGCCTACATCTGGCTCTATATGATT	660
Qу	661	CTGGCAGTCTTCTCCCCTGGTGTGGTCCAGGTTTGGGAAGGCCTCCTCACTCTCTTCTTC	720
Db	661	$\tt CTGGCAGTCTTCTCCCCTGGTGTGGTCCAGGTTTGGGAAGGCCTCCTCACTCTTCTTC$	720
QУ	721	TTTCCAGTGTGTCCTTCTGGCCTGGGTGGCAGATAAACGACTGCTCTTCTACAAATAC	780
Db	721	${\tt TTTCCAGTGTGTCCTTCTGGCCTGGGTGGCAGATAAACGACTGCTCTTCTACAAATAC}$	780
Qy	781	ATGCACAAAAGTACCGCACAGACAAACACCGAGGAATTATCATAGAGACAGAGGGTGAC	840
Db	781	ATGCACAAAAAGTACCGCACAGACAAACACCGAGGAATTATCATAGAGACAGAGGGTGAC	840
Qу	841	CACCCTAAGGGCATTGAGATGGGAAAATGATGAATTCCCATTTTCTAGATGGGAAC	900
Db	841	CACCCTAAGGGCATTGAGATGGGAAAATGATGAATTCCCATTTTCTAGATGGGAAC	900
Qу	901	CTGGTGCCCCTGGAAGGGAAGTGGATGATCCCGCAGAGAGATGATCCGGATTCTC	960
Db	901	CTGGTGCCCCTGGAAGGGAAGGAAGTGATCCCGCAGAGAGAG	960
Qу	961	AAGGATCTGAAGCAAAAACACCCAGAGAAGGACTTAGATCAGCTGGTGGAGATGGCCAAT	1020
Db	961	AAGGATCTGAAGCAAAAACACCCAGAGAAGGACTTAGATCAGCTGGTGGAGATGGCCAAT	1020
Qу	1021	TACTATGCTCTTTCCCACCAACAGAAGAGCCGCGCCTTCTACCGTATCCAAGCCACTCGT	1080
Db	1021	TACTATGCTCTTTCCCACCAACAGAAGAGCCGTGCCTTCTACCGTATCCAAGCCACTCGT	1080
Qу	1081	ATGATGACTGGTGCAGGCAATATCCTGAAGAAACATGCAGCAGAACAAGCCAAGAAGGCC	1140
Db	1081	${\tt ATGATGACTGGTGCAGGCAATATCCTGAAGAAACATGCAGCAGAACAAGCCAAGAAGGCC}$	1140

Qу	1141	TCCAGCATGAGCGAGGTGCACACCGATGAGCCTGAGGACTTTATTTCCAAGGTCTTCTTT	1200
Db	1141	TCCAGCATGAGCGAGGTGCACACCGATGAGCCTGAGGACTTTATTTCCAAGGTCTTCTTT	1200
QУ	1201	GACCCATGTTCTTACCAGTGCCTGGAGAACTGTGGGGGCTGTACTCCTGACAGTGGTGAGG	1260
Db	1201	GACCCATGTTCTTACCAGTGCCTGGAGAACTGTGGGGGCTGTACTCCTGACAGTGGTGAGG	1260
Qу	1261	AAAGGGGGAGACATGTCAAAGACCATGTATGTGGACTACAAAACAGAGGATGGTTCTGCC	1320
Db	1261	AAAGGGGGAGACATGTCAAAGACCATGTATGTGGACTACAAAACAGAGGATGGTTCTGCC	1320
Qу	1321	AATGCAGGGGCTGACTATGAGTTCACAGAGGGCACGGTGGTTCTGAAGCCAGGAGAGACC	1380
Db	1321	AATGCAGGGGCTGACTATGAGTTCACAGAGGGCACGGTGGTTCTGAAGCCAGGAGAGACC	1380
Qу	1381	CAGAAGGAGTTCTCCGTGGGCATAATTGATGACGACATTTTTGAGGAGGATGAACACTTC	1440
Db	1381	CAGAAGGAGTTCTCCGTGGGCATAATTGATGACGACATTTTTGAGGAGGATGAACACTTC	1440
Qу	1441	TTTGTAAGGTTGAGCAATGTCCGCATAGAGGAGGAGCAGCCAGAGGAGGAGGGGATGCCTCCA	1500
Db	1441	TTTGTAAGGTTGAGCAATGTCCGCATAGAGGAGGAGCAGCCAGAGGAGGAGGATGCCTCCA	1500
Qу	1501	GCAATATTCAACAGTCTTCCCTTGCCTCGGGCTGTCCTAGCCTCCCCTTGTGTGGCCACA	1560
Db	1501	GCAATATTCAACAGTCTTCCCTTGCCTCGGGCTGTCCTAGCCTCCCCTTGTGTGGCCACA	1560
Qу	1561	GTTACCATCTTGGATGATGACCATGCAGGCATCTTCACTTTTGAATGTGATACTATTCAT	1620
Db	1561	GTTACCATCTTGGATGATGACCATGCAGGCATCTTCACTTTTGAATGTGATACTATTCAT	1620
Qу	1621	GTCAGTGAGAGTATTGGTGTTATGGAGGTCAAGGTTCTGCGGACATCAGGTGCCCGGGGT	1680
Db	1621	GTCAGTGAGAGTATTGGTGTTATGGAGGTCAAGGTTCTGCGGACATCAGGTGCCCGGGGT	1680
QУ	1681	ACAGTCATCGTCCCCTTTAGGACAGTAGAAGGGACAGCCAAGGGTGGCGGTGAGGACTTT	1740
Db	1681	ACAGTCATCGTCCCCTTTAGGACAGTAGAAGGGACAGCCAAGGGTGGCGGTGAGGACTTT	1740
Qу	1741	GAAGACACATATGGGGAGTTGGAATTCAAGAATGATGAAAACTGTGAAAACCATAAGGGTT	1800
Db	1741	GAAGACACATATGGGGAGTTGGAATTCAAGAATGATGAAAACTGTGAAAACCATAAGGGTT	1800
Qу	1801	AAAATAGTAGATGAGGAGGAATACGAAAGGCAAGAGAATTTCTTCATTGCCCTTGGTGAA	1860
Db	1801	AAAATAGTAGATGAGGAGAATACGAAAGGCAAGAGAATTTCTTCATTGCCCTTGGTGAA	1860
Qу	1861	CCGAAATGGATGGAACGTGGAATATCAGATGTGACAGACAGG	1902
Db	1861	CCGAAATGGATGGAACGTGGAATATCAGGTGTGAGATTCTTTAAAGATGTGACAGACA	1920
Qу	1903	AAGCTGACTATGGAAGAAGAGGAGGCCAAGAGGATAGCAGAGATGGGAAAGCCAGTATTG	1962
Db	1921	AAGCTGACTATGGAAGAAGAGGAGGCCAAGAGATAGCAGAGATGGGAAAGCCAGTATTG	1980

Qy		GGTGAACACCCCAAACTAGAAGTCATCATTGAAGAGTCCTATGAGGTTCAAGACTACGGTG	
Db Qy		GGTGAACACCCCAAACTAGAAGTCATCATTGAAGAGTCCTATGAGTTCAAGACTACGGTG GACAAACTGATCAAGAAGACAAACCTGGCCTTGGTTGTGGGGGACCCATTCCTGGAGGGAC	
Db			
Qу	2083	CAGTTCATGGAGGCCATCACCGTCAGTGCAGCAGGGGATGAGGATGAGGATGAATCCGGG	2142
Db	2101		2160
Qу	2143	GAGGAGAGGCTGCCCTCCTGCTTTGACTACGTCATGCACTTCCTGACTGTCTTCTGGAAG	2202
Db	2161	GAGGAGGCTGCCTCCTGCTTTGACTACGTCATGCACTTCCTGACTGTCTTCTGGAAG	2220
Qу	2203	GTGCTGTTTGCCTGTGTGCCCCCACAGAGTACTGCCACGGCTGGGCCTGCTTCGCCGTC	2262
Db	2221	GTGCTGTTTGCCTGTGTGCCCCCCACAGAGTACTGCCACGGCTGGGCCTGCTTCGCCGTC	2280
Qу	2263	TCCATCCTCATCGCATGCTCACCGCCATCATTGGGGACCTGGCCTCGCACTTCGGC	2322
Db		TCCATCCTCATCGCATGCTCACCGCCATCATTGGGGACCTGGCCTCGCACTTCGGC	
Qу		TGCACCATTGGTCTCAAAGATTCAGTCACAGCTGTTGTTTTCGTGGCATTTGGCACCTCT	
Db		TGCACCATTGGTCTCAAAGATTCAGTCACAGCTGTTGTTTTCGTGGCACTTTTTTTT	
Qy 		GTCCCAGATACGTTTGCCAGCAAAGCTGCTGCCCTCCAGGATGTATATGCAGACGCCTCC	
Db		GTCCCAGATACGTTTGCCAGCAAAGCTGCTGCCCTCCAGGATGTATATGCAGACGCCTCC	
QУ		ATTGGCAACGTGACGGCAGCAACGCCGTCAATGTCTTCCTGGGCATCGGCCTGGCCTGG	
Db Ov		ATTGGCAACGTGACGGCAGCAACGCCGTCAATGTCTTCCTGGGCATCGGCCTGGCCTGG TCCGTGGCCGCCATCTACTGGGCTCTGCAGGGACAGGAGTTCCACGTGTCGGCCGGC	
Qy Db		TCCGTGGCCGCCATCTACTGGGCTCTGCAGGGACAGGAGTTCCACGTGTCGGCCGGC	
Qy		CTGGCCTTCTCCGTCACCCTCTTCACCATCTTTGCATTTGTCTGCATCAGCGTGCTCTTG	
Db			
Qу	2623	TACCGAAGGCGGCCGCACCTGGGAGGGGAGCTTGGTGGCCCCCGTGGCTGCAAGCTCGCC	2682
Db	2641		2700
Qу	2683	ACAACATGGCTCTTTGTGAGCCTGTGGCTCCTCTACATACTCTTTGCCACACTAGAGGCC	2742
Db	2701		2760
Qу	2743	TATTGCTACATCAAGGGGTTC 2763	
Db	2761	TATTGCTACATCAAGGGGTTC 2781	

```
RESULT 5
US-10-114-153-5
; Sequence 5, Application US/10114153
; Publication No. US20030185815A1
; GENERAL INFORMATION:
   APPLICANT: Padigaru, Muralidhara
   APPLICANT: Shenoy, Suresh
   APPLICANT: Kekuda, Ramesh
   APPLICANT: Rastelli, Luca
   APPLICANT: Mezes, Peter
;
  APPLICANT: Smithson, Glennda
; APPLICANT: Guo, Xiaojia
; APPLICANT: Gerlach, Valerie
; APPLICANT: Casman, Stacie
   APPLICANT: Boldog, Ferenc
   APPLICANT: Li, Li
   APPLICANT: Zerhusen, Bryan
;
   APPLICANT: Tchernev, Velizar
;
  APPLICANT: Gangolli, Esha
; APPLICANT: Vernet, Corine
  APPLICANT: Spytek, Kimberly
  APPLICANT: Malyankar, Uriel
   APPLICANT: Patturajan, Meera
   APPLICANT: Miller, Charles
;
  APPLICANT: Taupier, Raymond J. Jr.
;
  APPLICANT: Heyes, Melvyn
; APPLICANT: Ju, Jingfang
; APPLICANT: Peyman, John
  APPLICANT: Catterton, Elina
   APPLICANT: MacDougall, John
   APPLICANT: Edinger, Shlomit
   APPLICANT:
               Stone, David
   APPLICANT: Mazur, Ann
   TITLE OF INVENTION: NOVEL ANTIBODIES THAT BIND TO ANTIGENIC POLYPEPTIDES,
NUCLEIC ACIDS
   TITLE OF INVENTION: ENCODING THE ANTIGENS, AND METHODS OF USE
   FILE REFERENCE: 21402-322A
   CURRENT APPLICATION NUMBER: US/10/114,153
   CURRENT FILING DATE: 2002-08-06
   PRIOR APPLICATION NUMBER: 60/281086
   PRIOR FILING DATE: 2001-04-03
   PRIOR APPLICATION NUMBER: 60/281906
   PRIOR FILING DATE: 2001-04-05
   PRIOR APPLICATION NUMBER: 60/282020
   PRIOR FILING DATE: 2001-04-06
   PRIOR APPLICATION NUMBER: 60/282930
   PRIOR FILING DATE: 2001-04-10
   PRIOR APPLICATION NUMBER: 60/283512
   PRIOR FILING DATE: 2001-04-12
   PRIOR APPLICATION NUMBER: 60/283444
   PRIOR FILING DATE: 2001-04-12
   PRIOR APPLICATION NUMBER: 60/283657
   PRIOR FILING DATE: 2001-04-13
   PRIOR APPLICATION NUMBER: 60/283710
   PRIOR FILING DATE: 2001-04-13
; PRIOR APPLICATION NUMBER: 60/283678
; PRIOR FILING DATE: 2001-04-13
```

```
PRIOR APPLICATION NUMBER: 60/284234
  PRIOR FILING DATE: 2001-04-17
  Prior Application data removed - See File Wrapper or PALM.
  NUMBER OF SEQ ID NOS: 251
 SEQ ID NO 5
   LENGTH: 2685
   TYPE: DNA
   ORGANISM: Homo sapiens
   FEATURE:
   NAME/KEY: CDS
   LOCATION: (1)..(2685)
US-10-114-153-5
 Query Match
                   96.68;
                         Score 2673.2; DB 15; Length 2685;
 Best Local Similarity
                   99.9%; Pred. No. 0;
 Matches 2675; Conservative
                         0; Mismatches
                                      3;
                                         Indels
                                                 0; Gaps
                                                          0;
        86 GAGCAGAGGCTGGTGGCTCAGGGGACGTGCCAAGCACAGGGCAGAACAATGAGTCCTGTT 145
Qу
          2 GATCCGAGGCTGGTGGCTCAGGGGACGTGCCAAGCACAGGGCAGAACAATGAGTCCTGTT 61
Db
       146 CAGGGTCATCGGACTGCAAGGAGGGTGTCATCCTGCCAATCTGGTACCCGGAGAACCCTT 205
Qу
          62 CAGGGTCATCGGACTGCAAGGAGGGTGTCATCCTGCCAATCTGGTACCCGGAGAACCCTT 121
Db
       206 CCCTTGGGGACAAGATTGCCAGGGTCATTGTCTATTTTGTGGCCCTGATATACATGTTCC 265
Qу
          122 CCCTTGGGGACAAGATTGCCAGGGTCATTGTCTATTTTGTGGCCCTGATATACATGTTCC 181
Db
       266 TTGGGGTGTCCATCATTGCTGACCGCTTCATGGCATCTATTGAAGTCATCACCTCTCAAG 325
Qу
          Db
       182 TTGGGGTGTCCATCATTGCTGACCGCTTCATGGCATCTATTGAAGTCATCACCTCTCAAG 241
       326 AGAGGGAGGTGACAATTAAGAAACCCAATGGAGAAACCAGCACAACCACTATTCGGGTCT 385
Qу
          242 AGAGGGAGGTGACAATTAAGAAACCCAATGGAGAAACCAGCACAACCACTATTCGGGTCT 301
Db
       386 GGAATGAAACTGTCTCCAACCTGACCCTTATGGCCCTGGGTTCCTCTGCTCCTGAGATAC 445
Qу
          302 GGAATGAAACTGTCTCCAACCTGACCCTTATGGCCCTGGGTTCCTCTGCTCCTGAGATAC 361
Db
       446 TCCTCTCTTTAATTGAGGTGTGGTCATGGGTTCATTGCTGGTGATCTGGGACCTTCTA 505
Qу
          362 TCCTCTCTTTAATTGAGGTGTGTGGTCATGGGTTCATTGCTGGTGATCTGGGACCTTCTA 421
Db
       506 CCATTGTAGGGAGTGCAGCCTTCAACATGTTCATCATCATTGGCATCTGTGTCTACGTGA 565
Qy
          422 CCATTGTAGGGAGTGCAGCCTTCAACATGTTCATCATCATTGGCATCTGTGTCTACGTGA 481
Db
       566 TCCCAGACGGAGAGACTCGCAAGATCAAGCATCTACGAGTCTTCTTCATCACCGCTGCTT 625
Qу
          Db
       482 TCCCAGACGGAGAGACTCGCAAGATCAAACATCTACGAGTCTTCTTCATCACCGCTGCTT 541
       626 GGAGTATCTTTGCCTACATCTGGCTCTATATGATTCTGGCAGTCTTCTCCCCTGGTGTGG 685
Qу
          542 GGAGTATCTTTGCCTACATCTGGCTCTATATGATTCTGGCAGTCTTCTCCCCTGGTGTGG 601
Db
```

	Qу		TCCAGGTTTGGGAAGGCCTCCTCACTCTTCTTCTTTCCAGTGTGTCCTTCTGGCCT	
	Db	602	TCCAGGTTTGGGAAGGCCTCCTCACTCTTCTTCTTTCCAGTGTGTGT	661
	Qу	746	GGGTGGCAGATAAACGACTGCTCTTCTACAAATACATGCACAAAAAGTACCGCACAGACA	805
	Db	662	GGGTGGCAGATAAACGACTGCTCTTCTACAAATACATGCACAAAAAGTACCGCACAGACA	721
	Qy	806	AACACCGAGGAATTATCATAGAGACAGAGGGTGACCACCCTAAGGGCATTGAGATGGATG	865
	Db	722	AACACCGAGGAATTATCATAGAGACAGAGGGTGACCACCCTAAGGGCATTGAGATGGATG	781
	Qу	866	GGAAAATGATGAATTCCCATTTTCTAGATGGGAACCTGGTGCCCCTGGAAGGGAAGGAA	925
	Db	782	GGAAAATGATGAATTCCCATTTTCTAGATGGGAACCTGGTGCCCCTGGAAGGGAAGGAA	841
	Qу	926	TGGATGAGTCCCGCAGAGAGATGATCCGGATTCTCAAGGATCTGAAGCAAAAACACCCAG	985
	Db	842	TGGATGAGTCCCGCAGAGAGATGATCCGGATTCTCAAGGATCTGAAGCAAAAACACCCAG	901
	Qy	986	AGAAGGACTTAGATCAGCTGGTGGAGATGGCCAATTACTATGCTCTTTCCCACCAACAGA	1045
	Db	902	AGAAGGACTTAGATCAGCTGGTGGAGATGGCCAATTACTATGCTCTTTCCCACCAACAGA	961
	Qу	1046	AGAGCCGCGCCTTCTACCGTATCCAAGCCACTCGTATGATGACTGGTGCAGGCAATATCC	1105
	Db	962	AGAGCCGCGCCTTCTACCGTATCCAAGCCACTCGTATGATGACTGGTGCAGGCAATATCC	1021
	Qу	1106	TGAAGAACATGCAGCAGAACAAGCCAAGAAGGCCTCCAGCATGAGCGAGGTGCACACCG	1165
	Db	1022	TGAAGAAACATGCAGCAGAACAAGCCAAGAAGGCCTCCAGCATGAGCGAGGTGCACACCG	1081
	Qу	1166	ATGAGCCTGAGGACTTTATTTCCAAGGTCTTCTTTGACCCATGTTCTTACCAGTGCCTGG	1225
	Db	1082	ATGAGCCTGAGGACTTTATTTCCAAGGTCTTCTTTGACCCATGTTCTTACCAGTGCCTGG	1141
	Qу	1226	AGAACTGTGGGGCTGTACTCCTGACAGTGGTGAGGAAAGGGGGGAGACATGTCAAAGACCA	1285
	Db	1142	AGAACTGTGGGGCTGTACTCCTGACAGTGGTGAGGAAAGGGGGAGACATGTCAAAGACCA	1201
	Qу	1286	TGTATGTGGACTACAAAACAGAGGATGGTTCTGCCAATGCAGGGGCTGACTATGAGTTCA	1345
٠	Db	1202	TGTATGTGGACTACAAAACAGAGGATGGTTCTGCCAATGCAGGGGCTGACTATGAGTTCA	1261
	Qу	1346	CAGAGGCACGGTGGTTCTGAAGCCAGGAGAGCCCAGAAGGAGTTCTCCGTGGGCATAA	1405
	Db	1262	CAGAGGGCACGGTGGTTCTGAAGCCAGGAGAGCCCAGAAGGAGTTCTCCGTGGGCATAA	1321
	Qy	1406	TTGATGACGACATTTTTGAGGAGGATGAACACTTCTTTGTAAGGTTGAGCAATGTCCGCA	1465
	Db	1322	TTGATGACGACATTTTTGAGGAGGATGAACACTTCTTTGTAAGGTTGAGCAATGTCCGCA	1381
	Qу	1466	TAGAGGAGGAGCAGCCAGAGGGGGATGCCTCCAGCAATATTCAACAGTCTTCCCTTGC	1525
	Db	1382	TAGAGGAGGAGCCAGAGGAGGGGATGCCTCCAGCAATATTCAACAGTCTTCCCTTGC	1441
	Ov	1526	CTCGGGCTGTCCTAGCCTCCCCTTGTGTGTGGCCACAGTTACCATCTTGGATGATGACCATG	1585

Db	1442		1501
Qу	1586	${\tt CAGGCATCTTCACTTTTGAATGTGATACTATTCATGTCAGTGAGAGTATTGGTGTTATGG}$	1645
Db	1502		1561
QУ	1646	AGGTCAAGGTTCTGCGGACATCAGGTGCCCGGGGTACAGTCATCGTCCCCTTTAGGACAG	1705
Db	1562		1621
QУ	1706	TAGAAGGGACAGCCAAGGGTGGCGGTGAGGACTTTGAAGACACATATGGGGAGTTGGAAT	1765
Db	1622	TAGAAGGACAGCCAAGGGTGGCGGTGAGGACTTTGAAGACACATATGGGGAGTTGGAAT	1681
Qу	1766	TCAAGAATGATGAAAACTGTGAAAACCATAAGGGTTAAAATAGTAGATGAGGAGGAATACG	1825
Db	1682	TCAAGAATGATGAAAACTGTGAAAAACCATAAGGGTTAAAATAGTAGATGAGGAGGAATACG	1741
Qу	1826	AAAGGCAAGAGAATTTCTTCATTGCCCTTGGTGAACCGAAATGGATGG	1885
Db	1742	AAAGGCAAGAGAATTTCTTCATTGCCCTTGGTGAACCGAAATGGATGG	1801
Qу	1886	CAGATGTGACAGACAGGAAGCTGACTATGGAAGAAGAGGAGGCCAAGAGGATAGCAGAGA	1945
Db	1802	CAGATGTGACAGACAGGAAGCTGACTATGGAAGAAGAGGAGGCCAAGAGGATAGCAGAGA	1861
Qу	1946	TGGGAAAGCCAGTATTGGGTGAACACCCCAAACTAGAAGTCATCATTGAAGAGTCCTATG	2005
Db	1862	TGGGAAAGCCAGTATTGGGTGAACACCCCAAACTAGAAGTCATCATTGAAGAGTCCTATG	1921
Qу	2006	AGTTCAAGACTACGGTGGACAAACTGATCAAGAAGACAAACCTGGCCTTGGTTGTGGGGA	2065
Db	1922	AGTTCAAGACTACGGTGGACAAACTGATCAAGAAGACAAACCTGGCCTTGGTTGTGGGGA	1981
Qy	2066	CCCATTCCTGGAGGGACCAGTTCATGGAGGCCATCACCGTCAGTGCAGCAGGGGATGAGG	2125
Db	1982	CCCATTCCTGGAGGGACCAGTTCATGGAGGCCATCACCGTCAGTGCAGCAGGGGATGAGG	2041
Qy	2126	ATGAGGATGAATCCGGGGAGGAGGAGGCTGCCCTCCTGCTTTGACTACGTCATGCACTTCC	2185
Db	2042	ATGAGGATGAATCCGGGGAGGAGGAGGCTGCCCTCCTGCTTTGACTACGTCATGCACTTCC	2101
Qy	2186	TGACTGTCTTCTGGAAGGTGCTGTTTGCCTGTGTGCCCCCCACAGAGTACTGCCACGGCT	2245
Db	2102	TGACTGTCTTCTGGAAGGTGCTGTTTGCCTGTGTGCCCCCCACAGAGTACTGCCACGGCT	2161
Qу	2246	GGGCCTGCTTCGCCGTCTCCATCCTCATCATTGGCATGCTCACCGCCATCATTGGGGACC	2305
Db	2162	GGGCCTGCTTCGCCGTCTCCATCCTCATCATTGGCATGCTCACCGCCATCATTGGGGACC	2221
Qу	2306	TGGCCTCGCACTTCGGCTGCACCATTGGTCTCAAAGATTCAGTCACAGCTGTTGTTTTCG	2365
Db	2222	TGGCCTCGCACTTCGGCTGCACCATTGGTCTCAAAGATTCAGTCACAGCTGTTGTTTTCG	2281
Qy	2366	TGGCATTTGGCACCTCTGTCCCAGATACGTTTGCCAGCAAAGCTGCTGCCCTCCAGGATG	2425

```
Db
      2282 TGGCATTTGGCACCTCTGTCCCAGATACGTTTGCCAGCAAAGCTGCTGCCCTCCAGGATG 2341
Qy
      2426 TATATGCAGACGCCTCCATTGGCAACGTGACGGGCAGCAACGCCGTCAATGTCTTCCTGG 2485
           2342 TATATGCAGACGCCTCCATTGGCAACGTGACGGGCAGCAACGCCGTCAATGTCTTCCTGG 2401
Db
      2486 GCATCGGCCTGGCCTGGCCGCCCATCTACTGGGCTCTGCAGGGACAGGAGTTCC 2545
Qу
           2402 GCATCGGCCTGGCCTGGTCCGTGGCCGCCATCTACTGGGCTCTGCAGGGACAGGAGTTCC 2461
Db
      2546 ACGTGTCGGCCGGCACACTGGCCTTCTCCGTCACCCTCTTCACCATCTTTGCATTTGTCT 2605
Qу
          2462 ACGTGTCGGCCGGCACACTGGCCTTCTCCGTCACCCTCTTCACCATCTTTGCATTTGTCT 2521
Db
      2606 GCATCAGCGTGCTCTTGTACCGAAGGCGGCCGCACCTGGGAGGGGAGCTTGGTGGCCCCC 2665
Qу
           2522 GCATCAGCGTGCTCTTGTACCGAAGGCGGCCGCACCTGGGAGGGGAGCTTGGTGGCCCCC 2581
Db
      2666 GTGGCTGCAAGCTCGCCACAACATGGCTCTTTGTGAGCCTGTGGCTCCTCTACATACTCT 2725
Qγ
          2582 GTGGCTGCAAGCTCGCCACAACATGGCTCTTTGTGAGCCTGTGGCTCCTCTACATACTCT 2641
Db
      2726 TTGCCACACTAGAGGCCTATTGCTACATCAAGGGGTTC 2763
Qу
          Db
      2642 TTGCCACACTAGAGGCCTATTGCTACATCAAGGGGTTC 2679
RESULT 6
US-10-114-153-3
; Sequence 3, Application US/10114153
; Publication No. US20030185815A1
  APPLICANT: Padigaru, Muralidhara
  APPLICANT: Shenoy, Suresh
  APPLICANT: Kekuda, Ramesh
  APPLICANT: Rastelli, Luca
```

```
; GENERAL INFORMATION:
  APPLICANT: Mezes, Peter
  APPLICANT: Smithson, Glennda
  APPLICANT:
              Guo, Xiaojia
              Gerlach, Valerie
  APPLICANT:
              Casman, Stacie
  APPLICANT:
             Boldog, Ferenc
  APPLICANT:
  APPLICANT:
              Li, Li
  APPLICANT:
              Zerhusen, Bryan
  APPLICANT:
              Tchernev, Velizar
              Gangolli, Esha
  APPLICANT:
  APPLICANT:
              Vernet, Corine
              Spytek, Kimberly
  APPLICANT:
              Malyankar, Uriel
  APPLICANT:
  APPLICANT:
              Patturajan, Meera
  APPLICANT:
              Miller, Charles
  APPLICANT:
              Taupier, Raymond J. Jr.
              Heyes, Melvyn
  APPLICANT:
  APPLICANT:
              Ju, Jingfang
  APPLICANT:
              Peyman, John
  APPLICANT:
              Catterton, Elina
  APPLICANT:
              MacDougall, John
```

```
APPLICANT: Edinger, Shlomit
; APPLICANT: Stone, David
  APPLICANT: Mazur, Ann
  TITLE OF INVENTION: NOVEL ANTIBODIES THAT BIND TO ANTIGENIC POLYPEPTIDES,
NUCLEIC ACIDS
  TITLE OF INVENTION: ENCODING THE ANTIGENS, AND METHODS OF USE
  FILE REFERENCE: 21402-322A
  CURRENT APPLICATION NUMBER: US/10/114,153
  CURRENT FILING DATE: 2002-08-06
  PRIOR APPLICATION NUMBER: 60/281086
  PRIOR FILING DATE: 2001-04-03
  PRIOR APPLICATION NUMBER: 60/281906
  PRIOR FILING DATE: 2001-04-05
  PRIOR APPLICATION NUMBER: 60/282020
  PRIOR FILING DATE: 2001-04-06
  PRIOR APPLICATION NUMBER: 60/282930
  PRIOR FILING DATE: 2001-04-10
  PRIOR APPLICATION NUMBER: 60/283512
  PRIOR FILING DATE: 2001-04-12
  PRIOR APPLICATION NUMBER: 60/283444
  PRIOR FILING DATE: 2001-04-12
  PRIOR APPLICATION NUMBER: 60/283657
  PRIOR FILING DATE: 2001-04-13
  PRIOR APPLICATION NUMBER: 60/283710
  PRIOR FILING DATE: 2001-04-13
  PRIOR APPLICATION NUMBER: 60/283678
  PRIOR FILING DATE: 2001-04-13
  PRIOR APPLICATION NUMBER: 60/284234
  PRIOR FILING DATE: 2001-04-17
  Prior Application data removed - See File Wrapper or PALM.
  NUMBER OF SEQ ID NOS: 251
 SEQ ID NO 3
   LENGTH: 2840
   TYPE: DNA
   ORGANISM: Homo sapiens
   FEATURE:
   NAME/KEY: CDS
   LOCATION: (63)..(2838)
US-10-114-153-3
                       96.1%; Score 2657.6; DB 15; Length 2840;
 Query Match
 Best Local Similarity 97.6%; Pred. No. 0;
 Matches 2712; Conservative 0; Mismatches
                                                          12; Gaps
                                             54; Indels
                                                                      1;
          1 ATGGCGTGGTTAAGGTTGCAGCCTCTCACCTCTGCCTTCCTCCATTTTGGGCTGGTTACC 60
Qy
             63 ATGGCGTGGTTAAGGTTGCAGCCTCTCACCTCTGCCTTCCTCCATTTTGGGCTGGTTACC 122
Db
          61 TTTGTGCTCTTCCTGAATGGTCTTCGAGCAGAGGCTGGTGGCTCAGGGGACGTGCCAAGC 120
Qу
            Db
         123 TTTGTGCTCTTCCTGAATGGTCTTCGAGCAGAGGCTGGTGGCTCAGGGGACGTGCCAAGC 182
         121 ACAGGGCAGAACAATGAGTCCTGTTCAGGGTCATCGGACTGCAAGGAGGGTGTCATCCTG 180
Qу
             183 ACAGGGCAGAACAATGAGTCCTGTTCAGGGTCATCGGACTGCAAGGAGGGTGTCATCCTG 242
Db
        181 CCAATCTGGTACCCGGAGAACCCTTCCCTTGGGGACAAGATTGCCAGGGTCATTGTCTAT 240
Qy
```

Db	243	CCAATCTGGTACCCGGAGAACCCTTCCCTTGGGGACAAGATTGCCAGGGTCATTGTCTAT	302
Qу	241	TTTGTGGCCCTGATATACATGTTCCTTGGGGTGTCCATCATTGCTGACCGCTTCATGGCA	300
Db	303	TTTGTGGCCCTGATATACATGTTCCTTGGGGTGTCCATCATTGCTGACCGCTTCATGGCA	362
Qу	301	TCTATTGAAGTCATCACCTCTCAAGAGAGGGGGGGGGGG	360
Db	363	TCTATTGAAGTCATCACCTCTCAAGAGAGGGGAGGTGACAATTAAGAAACCCAATGGAGAA	422
Qу	361	ACCAGCACAACCACTATTCGGGTCTGGAATGAAACTGTCTCCAACCTGACCCTTATGGCC	420
Db	423	ACCAGCACAACCACTATTCGGGTCTGGAATGAAACTGTCTCCAACCTGACCCTTATGGCC	482
Qy	421	CTGGGTTCCTCTGAGATACTCCTCTTTAATTGAGGTGTGTGGTCATGGGTTC	480
Db	483	CTGGGTTCCTCTGAGATACTCCTCTTTAATTGAGGTGTGTGGTCATGGGTTC	542
Qу	481	ATTGCTGGTGATCTGGGACCTTCTACCATTGTAGGGAGTGCAGCCTTCAACATGTTCATC	540
Db	543	ATTGCTGGTGATCTGGGACCTTCTACCATTGTAGGGAGTGCAGCCTTCAACATGTTCATC	602
Qу	541	ATCATTGGCATCTGTGTCTACGTGATCCCAGACGGAGAGATCGCAAGATCAAGCATCTA	600
Db	603	ATCATTGGCATCTGTGTCTACGTGATCCCAGACGGAGAGACTCGCAAGATCAAGCATCTA	662
Qу	601	CGAGTCTTCTTCATCACCGCTGCTTGGAGTATCTTTGCCTACATCTGGCTCTATATGATT	660
Db	663		722
Qу	661	CTGGCAGTCTTCTCCCCTGGTGTGGTCCAGGTTTGGGAAGGCCTCCTCACTCTTCTTC	720
Db	723	CTGGCAGTCTTCTCCCCTGGTGTGGTCCAGGTTTGGGAAGGCCTCCTCACTCTTCTTC	782
Qу	721	TTTCCAGTGTGTCCTTCTGGCCTGGGTGGCAGATAAACGACTGCTCTTCTACAAATAC	780
Db	783	$\tt TTTCCAGTGTGTCCTTCTGGCCTGGGTGGCAGATAAACGACTGCTCTTCTACAAATAC$	842
Qу	781	ATGCACAAAAGTACCGCACAGACAAACACCGAGGAATTATCATAGAGACAGAGGGTGAC	840
Db	843	ATGCACAAAAGTACCGCACAGACAAACACCGAGGAATTATCATAGAGACAGAGGGTGAC	902
Qу	841	CACCCTAAGGGCATTGAGATGGGAAAATGATGAATTCCCATTTTCTAGATGGGAAC	900
Db	903	CACCCTAAGGGCATTGAGATGGGAAAATGATGAATTCCCATTTTCTAGATGGGAAC	962
Qу	901	CTGGTGCCCCTGGAAGGGAAGGAAGTGGATGATCCCGCAGAGAGATGATCCCGCATTCTC	960
Db	963	CTGGTGCCCCTGGAAGGGAAGGAAGTGGATGATCCCGCAGAGAGATGATCCCGGATTCTC	1022
Qу	961	AAGGATCTGAAGCAAAAACACCCAGAGAAGGACTTAGATCAGCTGGTGGAGATGGCCAAT	1020
Db	1023		1082
Qy	1021	TACTATGCTCTTTCCCACCAACAGAAGAGCCGCGCCTTCTACCGTATCCAAGCCACTCGT	

Db	1083	TACTATGCTCTTTCCCACCAACAGAAGAGCCGTGCCTTCTACCGTATCCAAGCCACTCGT	1142
Qy	1081	ATGATGACTGGTGCAGGCAATATCCTGAAGAAACATGCAGCAGAACAAGCCAAGAAGGCC	1140
Db	1143	ATGATGACTGGTGCAGGCAATATCCTGAAGAAACATGCAGCAGAACAAGCCAAGAAGGCC	1202
Qу	1141	TCCAGCATGAGCGAGGTGCACACCGATGAGCCTGAGGACTTTATTTCCAAGGTCTTCTTT	1200
Db	1203	TCCAGCATGAGCGAGGTGCACACCGATGAGCCTGAGGACTTTATTTCCAAGGTCTTCTTT	1262
Qу	1201	GACCCATGTTCTTACCAGTGCCTGGAGAACTGTGGGGGCTGTACTCCTGACAGTGGTGAGG	1260
Db	1263	GACCCATGTTCTTACCAGTGCCTGGAGAACTGTGGGGGCTGTACTCCTGACAGTGGTGAGG	1322
Qу	1261	AAAGGGGGAGACATGTCAAAGACCATGTATGTGGACTACAAAACAGAGGATGGTTCTGCC	1320
Db	1323	AAAGGGGGAGACATGTCAAAGACCATGTATGTGGACTACAAAACAGAGGATGGTTCTGCC	1382
Qу	1321	AATGCAGGGGCTGACTATGAGTTCACAGAGGGCACGGTGGTTCTGAAGCCAGGAGAGACC	1380
Db	1383	AATGCAGGGGCTGACTATGAGTTCACAGAGGGCACGGTGGTTCTGAAGCCAGGAGAGACC	1442
Qу	1381	CAGAAGGAGTTCTCCGTGGGCATAATTGATGACGACATTTTTGAGGAGGATGAACACTTC	1440
Db	1443	CAGAAGGAGTTCTCCGTGGGCATAATTGATGACGACATTTTTGAGGAGGATGAACACTTC	1502
Qу	1441	TTTGTAAGGTTGAGCAATGTCCGCATAGAGGAGGAGCAGCCAGAGGAGGAGGGATGCCTCCA	1500
Db	1503	TTTGTAAGGTTGAGCAATGTCCGCATAGAGGAGGAGCAGCCAGAGGAGGAGGGATGCCTCCA	1562
Qу	1501	GCAATATTCAACAGTCTTCCCTTGCCTCGGGCTGTCCTAGCCTCCCCTTGTGTGGCCACA	1560
Db	1563	GCAATATTCAACAGTCTTCCCTTGCCTCGGGCTGTCCTAGCCTCCCCTTGTGTGGCCACA	1622
Qу	1561	GTTACCATCTTGGATGATGACCATGCAGGCATCTTCACTTTTGAATGTGATACTATTCAT	1620
Db	1623	GTTACCATCTTGGATGATGACCATGCAGGCATCTTCACTTTTGAATGTGATACTATTCAT	1682
Qу	1621	GTCAGTGAGAGTATTGGTGTTATGGAGGTCAAGGTTCTGCGGACATCAGGTGCCCGGGGT	1680
Db	1683	GTCAGTGAGAGTATTGGTGTTATGGAGGTCAAGGTTCTGCGGACATCAGGTGCCCGGGGT	1742
Qу	1681	ACAGTCATCGTCCCCTTTAGGACAGTAGAAGGGACAGCCAAGGGTGGCGGTGAGGACTTT	1740
Db	1743	ACAGTCATCGTCCCCTTTAGGACAGTAGAAGGGACAGCCAAGGGTGGCGGTGAGGACTTT	1802
Qу	1741	GAAGACACATATGGGGAGTTGGAATTCAAGAATGATGAAACTGTGAAAACCATAAGGGTT	1800
Db	1803	GAAGACACATATGGGGAGTTGGAATTCAAGAATGATGAAAACTGTCAAAACAATTCACATC	1862
Qу	1801	AAAATAGTAGATGAGGAGGAATACGAAAGGCAAGAGAATTTCTTCATTGCCCTTGGTGAA	1860
Db	1863	AAGGTAATTGATGATGAGGCATATGAGAAAAACAAGAATTACTTCATTGAGATGATGGGC	1922
Qу	1861	CCGAAATGGATGGAACGTGGAATATCAGATGTGACAGACAGGAAGCTG	1908
Db	1923	CCCCGCATGGTGGATATGAGTTTTCAGAAAGCGCTCCTGTTATCTCCAGACAGGAAGCTG	1982

Qу	1909	ACTATGGAAGAAGAGGAGGCCAAGAGGATAGCAGAGATGGGAAAGCCAGTATTGGGTGAA	1968
Db	1983		2042
Qу	1969	CACCCCAAACTAGAAGTCATCATTGAAGAGTCCTATGAGTTCAAGACTACGGTGGACAAA	2028
Db	2043	CACCCCAAACTAGAAGTCATCATTGAAGAGTCCTATGAGTTCAAGACTACGGTGGACAAA	2102
Qy	2029	CTGATCAAGAAGACAAACCTGGCCTTGGTTGTGGGGACCCATTCCTGGAGGGACCAGTTC	2088
Db	2103	CTGATCAAGAAGACAAACCTGGCCTTGGTTGTGGGGACCCATTCCTGGAGGGACCAGTTC	2162
Qy	2089	ATGGAGGCCATCACCGTCAGTGCAGCAGGGGATGAGGATGAGGATGAATCCGGGGAGGAG	2148
Db	2163	ATGGAGGCCATCACCGTCAGTGCAGCAGGGGATGAGGATGAGGATGAATCCGGGGAGGAG	2222
Qу	2149	AGGCTGCCTCCTGCTTTGACTACGTCATGCACTTCCTGACTGTCTTCTGGAAGGTGCTG	2208
Db	2223	AGGCTGCCCTCCTGCTTTGACTACGTCATGCACTTCCTGACTGTCTTCTGGAAGGTGCTG	2282
Qу	2209	TTTGCCTGTGTGCCCCCACAGAGTACTGCCACGGCTGGGCCTGCTTCGCCGTCTCCATC	2268
Db	2283	TTTGCCTGTGTGCCCCCCACAGAGTACTGCCACGGCTGGGCCTGCTTCGCCGTCTCCATC	2342
Qу	2269	CTCATCATTGGCATGCTCACCGCCATCATTGGGGACCTGGCCTCGCACTTCGGCTGCACC	2328
Db	2343	CTCATCATTGGCATGCTCACCGCCATCATTGGGGACCTGGCCTCGCACTTCGGCTGCACC	2402
Qу	2329	ATTGGTCTCAAAGATTCAGTCACAGCTGTTGTTTTCGTGGCATTTGGCACCTCTGTCCCA	2388
Db	2403	ATTGGTCTCAAAGATTCAGTCACAGCTGTTGTTTTCGTGGCATTTGGCACCTCTGTCCCA	2462
Qу	2389	GATACGTTTGCCAGCAAAGCTGCTCCCTCCAGGATGTATATGCAGACGCCTCCATTGGC	2448
Db	2463	GATACGTTTGCCAGCAAAGCTGCTCCCAGGATGTATATGCAGACGCCTCCATTGGC	2522
Qу	2449	AACGTGACGGCCAGCAACGCCGTCAATGTCTTCCTGGGCATCGGCCTGGCCTGGTCCGTG	2508
Db	2523	AACGTGACGGCCAACGCCGTCAATGTCTTCCTGGGCATCGGCCTGGCCTGGTCCGTG	2582
Qу	2509	GCCGCCATCTACTGGGCTCTGCAGGGACAGGAGTTCCACGTGTCGGCCGGC	2568
Db	2583	GCCGCCATCTACTGGGCTCTGCAGGGACAGGAGTTCCACGTGTCGGCCGGC	2642
Qу	2569	TTCTCCGTCACCCTCTTCACCATCTTTGCATTTGTCTGCATCAGCGTGCTCTTGTACCGA	2628
Db	2643	TTCTCCGTCACCCTCTTCACCATCTTTGCATTTGTCTGCATCAGCGTGCTCTTGTACCGA	2702
Qу	2629	AGGCGGCCGCACCTGGGAGGGGAGCTTGGTGGCCCCCGTGGCTGCAAGCTCGCCACAACA	2688
Db	2703	AGGCGGCCGCACCTGGGAGGGGAGCTTGGTGGCCCCCGTGGCTGCAAGCTCGCCACAACA	2762
Qу	2689	TGGCTCTTTGTGAGCCTGTGGCTCCTCTACATACTCTTTGCCACACTAGAGGCCTATTGC	2748
Db	2763	TGGCTCTTTGTGAGCCTGTGGCTCCTCTACATACTCTTTGCCACACTAGAGGCCTATTGC	2822

; PRIOR APPLICATION NUMBER: 60/283657

```
RESULT 7
US-10-114-153-1
; Sequence 1, Application US/10114153
; Publication No. US20030185815A1
; GENERAL INFORMATION:
; APPLICANT: Padigaru, Muralidhara
; APPLICANT: Shenoy, Suresh
; APPLICANT: Kekuda, Ramesh
; APPLICANT: Rastelli, Luca
; APPLICANT: Mezes, Peter
; APPLICANT: Smithson, Glennda
  APPLICANT: Guo, Xiaojia
   APPLICANT: Gerlach, Valerie
  APPLICANT: Casman, Stacie
; APPLICANT: Boldog, Ferenc
; APPLICANT: Li, Li
; APPLICANT: Zerhusen, Bryan
; APPLICANT: Tchernev, Velizar
; APPLICANT: Gangolli, Esha
  APPLICANT: Vernet, Corine
; APPLICANT: Spytek, Kimberly
; APPLICANT: Malyankar, Uriel
; APPLICANT: Patturajan, Meera
; APPLICANT: Miller, Charles
; APPLICANT: Taupier, Raymond J. Jr.
; APPLICANT: Heyes, Melvyn
  APPLICANT: Ju, Jingfang
  APPLICANT: Peyman, John
 APPLICANT: Catterton, Elina
; APPLICANT: MacDougall, John
; APPLICANT: Edinger, Shlomit
; APPLICANT: Stone, David
; APPLICANT: Mazur, Ann
  TITLE OF INVENTION: NOVEL ANTIBODIES THAT BIND TO ANTIGENIC POLYPEPTIDES,
NUCLEIC ACIDS
; TITLE OF INVENTION: ENCODING THE ANTIGENS, AND METHODS OF USE
  FILE REFERENCE: 21402-322A
; CURRENT APPLICATION NUMBER: US/10/114,153
; CURRENT FILING DATE: 2002-08-06
; PRIOR APPLICATION NUMBER: 60/281086
; PRIOR FILING DATE: 2001-04-03
  PRIOR APPLICATION NUMBER: 60/281906
  PRIOR FILING DATE: 2001-04-05
   PRIOR APPLICATION NUMBER: 60/282020
   PRIOR FILING DATE: 2001-04-06
   PRIOR APPLICATION NUMBER: 60/282930
   PRIOR FILING DATE: 2001-04-10
; PRIOR APPLICATION NUMBER: 60/283512
  PRIOR FILING DATE: 2001-04-12
  PRIOR APPLICATION NUMBER: 60/283444
; PRIOR FILING DATE: 2001-04-12
```

```
PRIOR FILING DATE: 2001-04-13
  PRIOR APPLICATION NUMBER: 60/283710
  PRIOR FILING DATE: 2001-04-13
  PRIOR APPLICATION NUMBER: 60/283678
  PRIOR FILING DATE: 2001-04-13
  PRIOR APPLICATION NUMBER: 60/284234
  PRIOR FILING DATE: 2001-04-17
  Prior Application data removed - See File Wrapper or PALM.
  NUMBER OF SEQ ID NOS: 251
 SEQ ID NO 1
   LENGTH: 2813
   TYPE: DNA
   ORGANISM: Homo sapiens
   FEATURE:
   NAME/KEY: CDS
   LOCATION: (9)..(2793)
US-10-114-153-1
 Query Match
                    85.6%;
                          Score 2367.2; DB 15; Length 2813;
 Best Local Similarity
                    91.2%;
                          Pred. No. 0;
 Matches 2542; Conservative
                         0; Mismatches 223;
                                           Indels
                                                  21; Gaps
                                                            2;
         1 ATGGCGTGGTTAAGGTTGCAGCCTCTCACCTCTGCCTTCCTCCATTTTGGGCTGGTTACC 60
Qу
           9 ATGGCGTGGTTAAGGTTGCAGCCTCTCACCTCTGCCTTCCTCCATTTTGGGCTGGTTACC 68
Db
        61 TTTGTGCTCTTCCTGAATGGTCTTCGAGCAGAGGCTGGTGGCTCAGGGGACGTGCCAAGC 120
Qу
           69 TTTGTGCTCTTCCTGAATGGTCTTCGAGCAGAGGCTGGTGGCTCAGGGGACGTGCCAAGC 128
Db
        121 ACAGGGCAGAACAATGAGTCCTGTTCAGGGTCATCGGACTGCAAGGAGGGTGTCATCCTG 180
Qу
           129 ACAGGGCAGAACAATGAGTCCTGTTCAGGGTCATCGGACTGCAAGGAGGGTGTCATCCTG 188
Db
       181 CCAATCTGGTACCCGGAGAACCCTTCCCTTGGGGACAAGATTGCCAGGGTCATTGTCTAT 240
Qу
           189 CCAATCTGGTACCCGGAGAACCCTTCCCTTGGGGACAAGATTGCCAGGGTCATTGTCTAT 248
Db
        241 TTTGTGGCCCTGATATACATGTTCCTTGGGGTGTCCATCATTGCTGACCGCTTCATGGCA 300
Qу
           249 TTTGTGGCCCTGATATACATGTTCCTTGGGGTGTCCATCATTGCTGACCGCTTCATGGCA 308
Db
        301 TCTATTGAAGTCATCACCTCTCAAGAGAGGGAGGTGACAATTAAGAAACCCAATGGAGAA 360
Qу
           309 TCTATTGAAGTCATCACCTCTCAAGAGAGGGAGGTGACAATTAAGAAACCCAATGGAGAA 368
Db
        361 ACCAGCACAACCACTATTCGGGTCTGGAATGAAACTGTCTCCAACCTGACCCTTATGGCC 420
Qу
           369 ACCAGCACAACCACTATTCGGGTCTGGAATGAAACTGTCTCCAACCTGACCCTTATGGCC 428
Db
Qy
        421 CTGGGTTCCTCTGCTCCTGAGATACTCCTCTCTTTAATTGAGGTGTGTGGTCATGGGTTC 480
           Db
        429 CTGGGTTCCTCTGCTCCTGAGATACTCCTCTCTTTAATTGAGGTGTGTGGTCATGGGTTC 488
        481 ATTGCTGGTGATCTGGGACCTTCTACCATTGTAGGGAGTGCAGCCTTCAACATGTTCATC 540
Qу
           489 ATTGCTGGTGATCTGGGACCTTCTACCATTGTAGGGAGTGCAGCCTTCAACATGTTCATC 548
Dh
```

Qу	541	ATCATTGGCATCTGTGTCTACGTGATCCCAGACGGAGAGACTCGCAAGATCAAGCATCTA	600
Db	549	ATCATTGGCATCTGTGTCTACGTGATCCCAGACGGAGAGACTCGCAAGATCAAGCATCTA	608
Qy	601	CGAGTCTTCTTCATCACCGCTGCTTGGAGTATCTTTGCCTACATCTGGCTCTATATGATT	660
Db	609	CGAGTCTTCTTCATCACCGCTGCTTGGAGTATCTTTGCCTACATCTGGCTCTATATGATT	668
Qу	661	CTGGCAGTCTTCTCCCCTGGTGTGGTCCAGGTTTGGGAAGGCCTCCTCACTCTCTTCTTC	720
Db	669	CTGGCAGTCTTCTCCCCTGGTGTGGTCCAGGTTTGGGAAGGCCTCCTCACTCTTCTTC	728
Qу	721	TTTCCAGTGTGTCCTTCTGGCCTGGGTGGCAGATAAACGACTGCTCTTCTACAAATAC	780
Db	729	TTTCCAGTGTGTCCTTCTGGCCTGGGTGGCAGATAAACGACTGCTCTTCTACAAATAC	788
Qy	781	ATGCACAAAAGTACCGCACAGACAACACCGAGGAATTATCATAGAGACAGAGGGTGAC	840
Db	789	ATGCACAAAAAGTACCGCACAGACAAACACCGAGGAATTATCATAGAGACAGAGGGTGAC	848
Qy	841	CACCCTAAGGGCATTGAGATGGGAAAATGATGAATTCCCATTTTCTAGATGGGAAC	900
Db	849	CACCCTAAGGGCATTGAGATGGGAAAATGATGAATTCCCATTTTCTAGATGGGAAC	908
Qy	901	CTGGTGCCCCTGGAAGGAAGGAAGTGGATGATCCCGCAGAGAGATGATCCCGGATTCTC	960
Db	909	CTGGTGCCCCTGGAAGGGAAGGAAGTGGATGATCCCGCAGAGAGATGATCCCGGATTCTC	968
Qy	961	AAGGATCTGAAGCAAAAACACCCAGAGAAGGACTTAGATCAGCTGGTGGAGATGGCCAAT	1020
Db	969	AAGGATCTGAAGCAAAAACACCCAGAGAAGGACTTAGATCAGCTGGTGGAGATGGCCAAT	1028
Qy	1021	TACTATGCTCTTTCCCACCAACAGAAGAGCCGCGCCTTCTACCGTATCCAAGCCACTCGT	1080
Db	1029	TACTATGCTCTTTCCCACCAACAGAAGAGCCGTGCCTTCTACCGTATCCAAGCCACTCGT	1088
Qy	1081	ATGATGACTGGTGCAGGCAATATCCTGAAGAAACATGCAGCAGAACAAGCCAAGAAGGCC	1140
Db	1089	ATGATGACTGGTGCAGGCAATATCCTGAAGAAACATGCAGCAGAACAAGCCAAGAAGGCC	1148
Qy	1141	TCCAGCATGAGCGAGGTGCACACCGATGAGCCTGAGGACTTTATTTCCAAGGTCTTCTTT	1200
Db	1149	TCCAGCATGAGCGAGGTGCACACCGATGAGCCTGAGGACTTTATTTCCAAGGTCTTCTTT	1208
Qy	1201	GACCCATGTTCTTACCAGTGCCTGGAGAACTGTGGGGGCTGTACTCCTGACAGTGGTGAGG	1260
Db	1209	GACCCATGTTCTTACCAGTGCCTGGAGAACTGTGGGGGCTGTACTCCTGACAGTGGTGAGG	1268
Qy .	1261	AAAGGGGGAGACATGTCAAAGACCATGTATGTGGACTACAAAACAGAGGATGGTTCTGCC	1320
Db	1269	AAAGGGGGAGACATGTCAAAGACCATGTATGTGGACTACAAAACAGAGGATGGTTCTGCC	1328
Qy	1321	AATGCAGGGGCTGACTATGAGTTCACAGAGGGCACGGTGGTTCTGAAGCCAGGAGAGACC	1380
Db	1329	AATGCAGGGGCTGACTATGAGTTCACAGAGGGCACGGTGGTTCTGAAGCCAGGAGAGACC	1388

QУ	1381	CAGAAGGAGTTCTCCGTGGGCATAATTGATGACGACATTTTTTGAGGAGGATGAACACTTC	1440
Db	1389		1448
Qу	1441	TTTGTAAGGTTGAGCAATGTCCGCATAGAGGAGGAGCAGCCAGAGGAGGAGGGATGCCTCCA	1500
Db	1449	TTTGTAAGGTTGAGCAATGTCCGCATAGAGGAGGAGCAGCCAGAGGAGGAGGGATGCCTCCA	1508
Qy	1501	GCAATATTCAACAGTCTTCCCTTGCCTCGGGCTGTCCTAGCCTCCCCTTGTGTGGCCACA	1560
Db	1509	GCAATATTCAACAGTCTTCCCTTGCCTCGGGCTGTCCTAGCCTCCCCTTGTGTGGCCACA	1568
Qу	1561	GTTACCATCTTGGATGATGACCATGCAGGCATCTTCACTTTTGAATGTGATACTATTCAT	1620
Db	1569	GTTACCATCTTGGATGACCATGCAGGCATCTTCACTTTTGAATGTGATACTATTCAT	1628
Qу	1621	GTCAGTGAGAGTATTGGTGTTATGGAGGTCAAGGTTCTGCGGACATCAGGTGCCCGGGGT	1680
Db	1629	GTCAGTGAGAGTATTGGTGTTATGGAGGTCAAGGTTCTGCGGACATCAGGTGCCCGGGGT	1688
Qy	1681	ACAGTCATCGTCCCCTTTAGGACAGTAGAAGGGACAGCCAAGGGTGGCGGTGAGGACTTT	1740
Db	1689	ACAGTCATCGTCCCCTTTAGGACAGTAGAAGGGACAGCCAAGGGTGGCGGTGAGGACTTT	1748
Qy	1741	GAAGACACATATGGGGAGTTGGAATTCAAGAATGATGAAACTGTGAAAACCATAAGGGTT	1800
Db	1749	GAAGACACATATGGGGAGTTGGAATTCAAGAATGATGAAAACTGTGAAAACTCTTCAGGTG	1808
Qy	1801	AAAATAGTAGATGAGGAGGAATACGAAAGGCAAGAGAATTTCTTCATTGCCCTTGGTGAA	1860
Db	1809	AAGATAGTTGATGACGAGGAATATGAGAAAAAGGATAATTTCTTCATTGAGCTGGGCCAG	1868
Qy	1861	CCGAAATGGATGGAACGTGGAATATCAGATGTGACAGACAGG	1902
Db	1869	CCCCAGTGGCTTAAGCGAGGGATTTCAGCTCTGCTACTCAATCAA	1928
Qу	1903	AAGCTGACTATGGAAGAAGAGGAGGCCAAGAGGATAGCAGAGATGGGAAAGCCAGTATTG	1962
Db	1929	AAGCTAACAGCCGAGGAGGAGGAGGCTCGGAGGATAGCAGAGATGGGCAAGCCAGTTCTT	1988
Qу	1963	GGTGAACACCCCAAACTAGAAGTCATCATTGAAGAGTCCTATGAGTTCAAGACTACGGTG	2022
Db	1989	GGGGAGAACTGCCGGCTGGAGGTCATCATCGAGGAGTCATATGATTTTAAGAACACGGTG	2048
Qу	2023	GACAAACTGATCAAGAAGACAAACCTGGCCTTGGTTGTGGGGACCCATTCCTGGAGGGAC	2082
Db	2049	GATAAACTCATCAAGAAAACGAACTTGGCCTTGGTAATTGGGACCCATTCATGGAGGGAG	2108
Qу	2083	CAGTTCATGGAGGCCATCACCGTCAGTGCAGCAGGGGATGAGGATGAGGATGAATCC	2139
Db	2109	CAGTTTTTAGAGGCAATTACGGTGAGCGCAGGGGACGAGGAGGAGGAGGAGGACGGGTCC	2168
Qу	2140	GGGGAGGAGGCTGCCTCCTGCTTTGACTACGTCATGCACTTCCTGACTGTCTTCTGG	2199
Db	2169	CGGGAGGAGCGCTGCCGTCGTGCTTTGACTACGTGATGCACTTCCTGACGGTGTTCTGG	2228
Qу	2200	${\tt AAGGTGCTGTTTGCCTGTGTGCCCCCCACAGAGTACTGCCACGGCTGGGCCTGCTTCGCC}$	2259

```
2229 AAGGTGCTCTTCGCCTGTGTGCCCCCCACCGAGTACTGCCACGGCTGGGCCTGCTTTGGT 2288
Db
      2260 GTCTCCATCCTCATCATTGGCATGCTCACCGCCATCATTGGGGACCTGGCCTCGCACTTC 2319
Qу
          2289 GTCTCCATCCTGGTCATCGGCCTGCTCACCGCCTCATTGGGGACCTCGCCTCCCACTTC 2348
Db
      2320 GGCTGCACCATTGGTCTCAAAGATTCAGTCACAGCTGTTGTTTTCGTGGCATTTGGCACC 2379
Qу
          2349 GGCTGCACCGTTGGCCTCAAGGACTCTGTCAATGCTGTTGTCTTCGTTGCCCTGGGCACC 2408
Db
      2380 TCTGTCCCAGATACGTTTGCCAGCAAAGCTGCTGCCCTCCAGGATGTATATGCAGACGCC 2439
Qу
          2409 TCCATCCTGACACGTTCGCCAGCAAGGTGGCGCGCTGCAGGACCAGTGCGCCGACGCG 2468
Db
      2440 TCCATTGGCAACGTGACGGCCAGCAACGCCGTCAATGTCTTCCTGGGCATCGGCCTGGCC 2499
Qу
          2469 TCCATCGGCAACGTGACCGGCTCCAACGCGGTGAACGTGTTCCTTGGCCTGGGCGTCGCC 2528
Db
      Qу
          ++11
      2529 TGGTCTGTGGCCGCGTGTACTGGGCGGTGCAGGGCCGCCCCTTCGAGGTGCGCACTGGC 2588
Db
      2560 ACACTGGCCTTCTCCGTCACCCTCTTCACCATCTTTGCATTTGTCTGCATCAGCGTGCTC 2619
Qy
          1111
                                                 11111
      2589 ACGCTGGCCTTCTCCGTCACGCTCTTCACCGTCTTCGCCTTCGTGGGCATTGCCGTGCTG 2648
Db
      2620 TTGTACCGAAGGCGGCCGCACCTGGGAGGGGGGGCTTGGTGGCCCCCGTGGCTGCAAGCTC 2679
Qy
           Db
      2680 GCCACAACATGGCTCTTTGTGAGCCTGTGGCTCCTCTACATACTCTTTGCCACACTAGAG 2739
Qу
          11111 11
                  2709 GCCACCACCGCGCTCTTCCTGGGCCTCTGGCTCCTGTACATCCTCTTCGCCAGCCTGGAG 2768
Db
      2740 GCCTATTGCTACATCAAGGGGTTCTA 2765
Qу
          11 11 111 1111 111 111 11111
Db
      2769 GCGTACTGCCACATCCGGGGCTTCTA 2794
RESULT 8
US-10-256-537-1
; Sequence 1, Application US/10256537
; Publication No. US20030162196A1
; GENERAL INFORMATION:
  APPLICANT: Carroll, Joseph M.
  TITLE OF INVENTION: METHODS OF USING 69039, A NOVEL HUMAN
  TITLE OF INVENTION: NA/CA EXCHANGER FAMILY MEMBER
  FILE REFERENCE: MPI01-231P1RM
  CURRENT APPLICATION NUMBER: US/10/256,537
  CURRENT FILING DATE: 2002-04-19
  PRIOR APPLICATION NUMBER: 60/325,737
  PRIOR FILING DATE: 2001-09-28
  NUMBER OF SEQ ID NOS: 5
  SOFTWARE: FastSEQ for Windows Version 4.0
```

; SEQ ID NO 1

LENGTH: 2534

; TYPE: DNA ; ORGANISM: Homo sapien US-10-256-537-1

	cal	64.6%; Score 1786.4; DB 15; Length 2534; Similarity 99.9%; Pred. No. 0; 7; Conservative 0; Mismatches 1; Indels 0; Gaps	0;
		•	·
Qy Db		ATGGCGTGGTTAAGGTTGCAGCCTCTCACCTCTGCCTTCCTCCATTTTGGGCTGGTTACC	
Qy	61	TTTGTGCTCTTCCTGAATGGTCTTCGAGCAGAGGCTGGTGGCTCAGGGGACGTGCCAAGC	120
Db	403		462
Qу	121	ACAGGCAGAACAATGAGTCCTGTTCAGGGTCATCGGACTGCAAGGAGGGTGTCATCCTG	180
Db	463		522
Qy	181	CCAATCTGGTACCCGGAGAACCCTTCCCTTGGGGACAAGATTGCCAGGGTCATTGTCTAT	240
Db	523		582
Qу	241	TTTGTGGCCCTGATATACATGTTCCTTGGGGTGTCCATCATTGCTGACCGCTTCATGGCA	300
Db	583		642
Qу	301	TCTATTGAAGTCATCACCTCTCAAGAGAGGGGAGGTGACAATTAAGAAACCCAATGGAGAA	360
Db	643		702
Qу	361	ACCAGCACAACCACTATTCGGGTCTGGAATGAAACTGTCTCCAACCTGACCCTTATGGCC	420
Db	703		762
Qy	421	CTGGGTTCCTCTGAGATACTCCTCTCTTTAATTGAGGTGTGTGGTCATGGGTTC	480
Db	763	CTGGGTTCCTCTGAGATACTCCTCTTTAATTGAGGTGTGTGGTCATGGGTTC	822
Qу	481	ATTGCTGGTGATCTGGGACCTTCTACCATTGTAGGGAGTGCAGCCTTCAACATGTTCATC	540
Db	823		882
Qу	541	ATCATTGGCATCTGTGTCTACGTGATCCCAGACGGAGAGACTCGCAAGATCAAGCATCTA	600
Db	883		942
Qy	601	CGAGTCTTCTTCATCACCGCTGCTTGGAGTATCTTTGCCTACATCTGGCTCTATATGATT	660
Db	943		1002
Qy	661	CTGGCAGTCTTCTCCCCTGGTGTGGTCCAGGTTTGGGAAGGCCTCCTCACTCTTCTTC	720
Db	1003	CTGGCAGTCTTCTCCCCTGGTGTGGTCCAGGTTTGGGAAGGCCTCCTCACTCTTCTTC	1062
Qy	721	$\tt TTTCCAGTGTGTCCTTCTGGCCTGGGTGGCAGATAAACGACTGCTCTTCTACAAATAC$	780

Db	1063		1122
Qу	781	ATGCACAAAAAGTACCGCACAGACAAACACCGAGGAATTATCATAGAGACAGAGGGTGAC	840
Db	1123		1182
Qу	841	CACCCTAAGGGCATTGAGATGGGAAAATGATGAATTCCCATTTTCTAGATGGGAAC	900
Db	1183		1242
Qу	901	CTGGTGCCCCTGGAAGGAAGGAAGTGATGATCCCGCAGAGAGATGATCCCGGATTCTC	960
Db	1243	CTGGTGCCCCTGGAAGGAAGTGATGATCCCGCAGAGAGATGATCCCGATTCTC	1302
Qу	961	AAGGATCTGAAGCAAAAACACCCAGAGAAGGACTTAGATCAGCTGGTGGAGATGGCCAAT	1020
Db	1303	AAGGATCTGAAGCAAAAACACCCAGAGAAGGACTTAGATCAGCTGGTGGAGATGGCCAAT	1362
Qу	1021	TACTATGCTCTTTCCCACCAACAGAAGAGCCGCGCCTTCTACCGTATCCAAGCCACTCGT	1080
Db	1363	TACTATGCTCTTTCCCACCAACAGAAGAGCCGCGCCTTCTACCGTATCCAAGCCACTCGT	1422
QУ	1081	ATGATGACTGGTGCAGGCAATATCCTGAAGAAACATGCAGCAGAACAAGCCAAGAAGGCC	1140
Db	1423		1482
Qy	1141	TCCAGCATGAGCGAGGTGCACACCGATGAGCCTGAGGACTTTATTTCCAAGGTCTTCTTT	1200
Db	1483	TCCAGCATGAGCGAGGTGCACCGATGAGCCTGAGGACTTTATTTCCAAGGTCTTCTTT	1542
QУ	1201	GACCCATGTTCTTACCAGTGCCTGGAGAACTGTGGGGCTGTACTCCTGACAGTGGTGAGG	1260
Db	1543	GACCCATGTTCTTACCAGTGCCTGGAGAACTGTGGGGCTGTACTCCTGACAGTGGTGAGG	1602
Qу	1261	AAAGGGGGAGACATGTCAAAGACCATGTATGTGGACTACAAAACAGAGGATGGTTCTGCC	1320
Db	1603	AAAGGGGGAGACATGTCAAAGACCATGTATGTGGACTACAAAACAGAGGATGGTTCTGCC	1662
QУ	1321	AATGCAGGGGCTGACTATGAGTTCACAGAGGGCACGGTGGTTCTGAAGCCAGGAGAGACC	1380
Db	1663	AATGCAGGGGCTGACTATGAGTTCACAGAGGGCACGGTGGTTCTGAAGCCAGGAGAGACC	1722
QУ	1381	CAGAAGGAGTTCTCCGTGGGCATAATTGATGACGACATTTTTGAGGAGGATGAACACTTC	1440
Db	1723	CAGAAGGAGTTCTCCGTGGGCATAATTGATGACGACATTTTTGAGGAGGATGAACACTTC	1782
Qу	1441	TTTGTAAGGTTGAGCAATGTCCGCATAGAGGAGGAGGAGCCAGAGGAGGAGGGGATGCCTCCA	1500
Db	1783	TTTGTAAGGTTGAGCAATGTCCGCATAGAGGAGGAGCCAGAGGAGGAGGGGATGCCTCCA	1842
Qу	1501	GCAATATTCAACAGTCTTCCCTTGCCTCGGGCTGTCCTAGCCTCCCCTTGTGTGGCCACA	1560
Db	1843	GCAATATTCAACAGTCTTCCCTTGCCTCGGGCTGTCCTAGCCTCCCCTTGTGTGGCCACA	1902
Qу	1561	GTTACCATCTTGGATGATGACCATGCAGGCATCTTCACTTTTGAATGTGATACTATTCAT	1620

```
Db
       1903 GTTACCATCTTGGATGATGACCATGCAGGCATCTTCACTTTTGAATGTGATACTATTCAT 1962
Qy
       1621 GTCAGTGAGAGTATTGGTGTTATGGAGGTCAAGGTTCTGCGGACATCAGGTGCCCGGGGT 1680
           Db
       1963 GTCAGTGAGAGTATTGGTGTTATGGAGGTCAAGGTTCTGCGGACATCAGGTGCCCGGGGT 2022
       1681 ACAGTCATCGTCCCCTTTAGGACAGTAGAAGGGACAGCCAAGGGTGGCGGTGAGGACTTT 1740
Qу
           2023 ACAGTCATCGTCCCCTTTAGGACAGTAGAAGGGACAGCCAAGGGTGGCGGTGAGGACTTT 2082
Db
       1741 GAAGACACATATGGGGAGTTGGAATTCAAGAATGATGAAACTGTGAAA 1788
Qу
           2083 GAAGACACATATGGGGAGTTGGAATTCAAGAATGATGAAACTGTGTAA 2130
Db
RESULT 9
US-10-256-537-3
; Sequence 3, Application US/10256537
; Publication No. US20030162196A1
; GENERAL INFORMATION:
  APPLICANT: Carroll, Joseph M.
  TITLE OF INVENTION: METHODS OF USING 69039, A NOVEL HUMAN
  TITLE OF INVENTION: NA/CA EXCHANGER FAMILY MEMBER
  FILE REFERENCE: MPI01-231P1RM
  CURRENT APPLICATION NUMBER: US/10/256,537
  CURRENT FILING DATE: 2002-04-19
  PRIOR APPLICATION NUMBER: 60/325,737
  PRIOR FILING DATE: 2001-09-28
  NUMBER OF SEO ID NOS: 5
  SOFTWARE: FastSEO for Windows Version 4.0
 SEQ ID NO 3
   LENGTH: 2534
   TYPE: DNA
   ORGANISM: Homo sapien
   FEATURE:
   NAME/KEY: CDS
   LOCATION: (343)...(2130)
US-10-256-537-3
 Query Match
                     64.6%; Score 1786.4; DB 15; Length 2534;
 Best Local Similarity
                     99.9%; Pred. No. 0;
 Matches 1787; Conservative
                           0; Mismatches
                                         1; Indels
                                                     0; Gaps
                                                               0;
         1 ATGGCGTGGTTAAGGTTGCAGCCTCTCACCTCTGCCTTCCTCCATTTTGGGCTGGTTACC 60
Qу
           343 ATGGCGTGGTTAAGGTTGCAGCCTCTCACCTCTGCCTTCCTCCATTTTGGGCTGGTTACC 402
Db
         61 TTTGTGCTCTTCCTGAATGGTCTTCGAGCAGAGGCTGGTGGCTCAGGGGGACGTGCCAAGC 120
QУ
           403 TTTGTGCTCTTCCTGAATGGTCTTCGAGCAGAGGCTGGTGGCTCAGGGGACGTGCCAAGC 462
Db
        121 ACAGGGCAGAACAATGAGTCCTGTTCAGGGTCATCGGACTGCAAGGAGGGTGTCATCCTG 180
Qy
           463 ACAGGGCAGAACAATGAGTCCTGTTCAGGGTCATCGGACTGCAAGGAGGGTGTCATCCTG 522
Db
        181 CCAATCTGGTACCCGGAGAACCCTTCCCTTGGGGACAAGATTGCCAGGGTCATTGTCTAT 240
Qу
```

Db	523	${\tt CCAATCTGGTACCCGGAGAACCCTTCCCTTGGGGACAAGATTGCCAGGGTCATTGTCTAT}$	582
Qy	241	TTTGTGGCCCTGATATACATGTTCCTTGGGGTGTCCATCATTGCTGACCGCTTCATGGCA	300
Db	583	TTTGTGGCCCTGATATACATGTTCCTTGGGGTGTCCATCATTGCTGACCGCTTCATGGCA	642
Qу	301	TCTATTGAAGTCATCACCTCTCAAGAGAGGGAGGTGACAATTAAGAAACCCAATGGAGAA	360
Db	643		702
Qу	361	ACCAGCACAACCACTATTCGGGTCTGGAATGAAACTGTCTCCAACCTGACCCTTATGGCC	420
Db	703		762
Qу	421	CTGGGTTCCTCTGAGATACTCCTCTCTTTAATTGAGGTGTGTGGTCATGGGTTC	480
Db	763	CTGGGTTCCTCTGAGATACTCCTCTTTAATTGAGGTGTGTGGTCATGGGTTC	822
Qу	481	ATTGCTGGTGATCTGGGACCTTCTACCATTGTAGGGAGTGCAGCCTTCAACATGTTCATC	540
Db	823	ATTGCTGGTGATCTGGGACCTTCTACCATTGTAGGGAGTGCAGCCTTCAACATGTTCATC	882
Qу	541	ATCATTGGCATCTGTGTCTACGTGATCCCAGACGGAGAGACTCGCAAGATCAAGCATCTA	600
Db	883	ATCATTGGCATCTGTGTCTACGTGATCCCAGACGGAGAGACTCGCAAGATCAAGCATCTA	942
Qу	601	CGAGTCTTCTTCATCACCGCTGCTTGGAGTATCTTTGCCTACATCTGGCTCTATATGATT	660
Db	943		1002
Qу	661	CTGGCAGTCTTCTCCCCTGGTGTGGTCCAGGTTTGGGAAGGCCTCCTCACTCTCTTC	720
Db	1003		1062
Qу	721	TTTCCAGTGTGTCCTTCTGGCCTGGGTGGCAGATAAACGACTGCTCTTCTACAAATAC	780
Db	1063	TTTCCAGTGTGTCCTTCTGGCCTGGGTGGCAGATAAACGACTGCTCTTCTACAAATAC	1122
Qу	781	ATGCACAAAAGTACCGCACAGACAAACACCGAGGAATTATCATAGAGACAGAGGGTGAC	840
Db	1123	ATGCACAAAAGTACCGCACAGACAAACACCGAGGAATTATCATAGAGACAGAGGGTGAC	1182
Qу	841	CACCCTAAGGGCATTGAGATGGGAAAATGATGAATTCCCATTTTCTAGATGGGAAC	900
Db	1183	CACCCTAAGGGCATTGAGATGGGAAAATGATGAATTCCCATTTTCTAGATGGGAAC	1242
Qу	901	CTGGTGCCCCTGGAAGGGAAGGAAGTGGATGATCCCGCAGAGAGATGATCCCGATTCTC	960
Db	1243	CTGGTGCCCCTGGAAGGGAAGGAGAGTGATCCCGCAGAGAGATGATCCCGGATTCTC	1302
Qу	961	AAGGATCTGAAGCAAAAACACCCAGAGAAGGACTTAGATCAGCTGGTGGAGATGGCCAAT	1020
Db	1303	AAGGATCTGAAGCAAAAACACCCAGAGAAGGACTTAGATCAGCTGGTGGAGATGGCCAAT	1362
Qу	1021	TACTATGCTCTTTCCCACCAACAGAAGAGCCGCGCCTTCTACCGTATCCAAGCCACTCGT	1080
Db	1363	TACTATCCTCTTTCCCACCAACAGAAGAGCCGCGCCTTCTACCGTATCCAAGCCACTCGT	1422

Qy	1081	ATGATGACTGGTGCAGGCAATATCCTGAAGAAACATGCAGCAGAACAAGCCAAGAAGGCC	1140
Db	1423	ATGATGACTGGTGCAGGCAATATCCTGAAGAAACATGCAGCAGAACAAGCCAAGAAGGCC	1482
Qу	1141	TCCAGCATGAGCGAGGTGCACACCGATGAGCCTGAGGACTTTATTTCCAAGGTCTTCTTT	1200
Db	1483	TCCAGCATGAGCGAGGTGCACACCGATGAGCCTGAGGACTTTATTTCCAAGGTCTTCTTT	1542
Qу	1201	GACCCATGTTCTTACCAGTGCCTGGAGAACTGTGGGGGCTGTACTCCTGACAGTGGTGAGG	1260
Db	1543	GACCCATGTTCTTACCAGTGCCTGGAGAACTGTGGGGGCTGTACTCCTGACAGTGGTGAGG	1602
Qy .	1261	AAAGGGGGAGACATGTCAAAGACCATGTATGTGGACTACAAAACAGAGGATGGTTCTGCC	1320
Db	1603	AAAGGGGGAGACATGTCAAAGACCATGTATGTGGACTACAAAACAGAGGATGGTTCTGCC	1662
Qу	1321	AATGCAGGGGCTGACTATGAGTTCACAGAGGGCACGGTGGTTCTGAAGCCAGGAGAGACC	1380
Db	1663	AATGCAGGGGCTGACTATGAGTTCACAGAGGGCACGGTGGTTCTGAAGCCAGGAGAGACC	1722
Qy	1381	CAGAAGGAGTTCTCCGTGGGCATAATTGATGACGACATTTTTGAGGAGGATGAACACTTC	1440
Db	1723	CAGAAGGAGTTCTCCGTGGGCATAATTGATGACGACATTTTTGAGGAGGATGAACACTTC	1782
Qy	1441	TTTGTAAGGTTGAGCAATGTCCGCATAGAGGAGGAGCAGCCAGAGGAGGGGGATGCCTCCA	1500
Db	1783	TTTGTAAGGTTGAGCAATGTCCGCATAGAGGAGGAGCAGCCAGAGGAGGAGGGATGCCTCCA	1842
Qу	1501	GCAATATTCAACAGTCTTCCCTTGCCTCGGGCTGTCCTAGCCTCCCCTTGTGTGGCCACA	1560
Db	1843	GCAATATTCAACAGTCTTCCCTTGCCTCGGGCTGTCCTAGCCTCCCCTTGTGTGGCCACA	1902
Qy	1561	GTTACCATCTTGGATGATGACCATGCAGGCATCTTCACTTTTGAATGTGATACTATTCAT	1620
Db	1903		1962
Qy	1621	GTCAGTGAGAGTATTGGTGTTATGGAGGTCAAGGTTCTGCGGACATCAGGTGCCCGGGGT	1680
Db	1963	GTCAGTGAGAGTATTGGTGTTATGGAGGTCAAGGTTCTGCGGACATCAGGTGCCCGGGGT	2022
Qy	1681	ACAGTCATCGTCCCCTTTAGGACAGTAGAAGGGACAGCCAAGGGTGGCGGTGAGGACTTT	1740
Db	2023	ACAGTCATCGTCCCCTTTAGGACAGTAGAAGGGACAGCCAAGGGTGGCGGTGAGGACTTT	2082
Qy	1741	GAAGACACATATGGGGAGTTGGAATTCAAGAATGATGAAACTGTGAAA 1788	
Db	2083	GAAGACACATATGGGGAGTTGGAATTCAAGAATGATGAAACTGTGTAA 2130	

## RESULT 10

US-09-804-474A-3

<sup>;</sup> Sequence 3, Application US/09804474A; Patent No. US20020119518A1

<sup>;</sup> GENERAL INFORMATION:

<sup>;</sup> APPLICANT: KODET, Stefan et al

<sup>;</sup> TITLE OF INVENTION: ISOLATED HUMAN TRANSPORTER PROTEINS,

```
TITLE OF INVENTION: NUCLEIC ACID MOLECULES ENCODING HUMAN TRANSPORTER
PROTEINS.
  TITLE OF INVENTION: AND USES THEREOF
  FILE REFERENCE: CL000891
  CURRENT APPLICATION NUMBER: US/09/804,474A
  CURRENT FILING DATE: 2001-03-13
  NUMBER OF SEQ ID NOS: 4
  SOFTWARE: FastSEO for Windows Version 4.0
 SEQ ID NO 3
   LENGTH: 126512
   TYPE: DNA
   ORGANISM: Human
   FEATURE:
   NAME/KEY: misc_feature
   LOCATION: (1)...(126512)
   OTHER INFORMATION: n = A, T, C or G
US-09-804-474A-3
 Query Match
                    64.5%; Score 1784.8; DB 9;
                                           Length 126512;
 Best Local Similarity
                    99.9%;
                          Pred. No. 0;
 Matches 1786; Conservative
                          0; Mismatches
                                        2:
                                           Indels
                                                   0; Gaps
                                                             0:
         1 ATGGCGTGGTTAAGGTTGCAGCCTCTCACCTCTGCCTTCCTCCATTTTGGGCTGGTTACC 60
Qу
           Db
       2010 ATGGCGTGGTTAAGGTTGCAGCCTCTCACCTCTGCCTTCCTCCATTTTGGGCTGGTTACC 2069
        61 TTTGTGCTCTTCCTGAATGGTCTTCGAGCAGAGGCTGGTGGCTCAGGGGACGTGCCAAGC 120
Qу
           2070 TTTGTGCTCTTCCTGAATGGTCTTCGAGCAGAGGCTGGTGGCTCAGGGGGACGTGCCAAGC 2129
Db
       121 ACAGGGCAGAACAATGAGTCCTGTTCAGGGTCATCGGACTGCAAGGAGGGTGTCATCCTG 180
Qу
           Db
       2130 ACAGGGCAGAACAATGAGTCCTGTTCAGGGTCATCGGACTGCAAGGAGGGTGTCATCCTG 2189
       181 CCAATCTGGTACCCGGAGAACCCTTCCCTTGGGGACAAGATTGCCAGGGTCATTGTCTAT 240
Qу
           2190 CCAATCTGGTACCCGGAGAACCCTTCCCTTGGGGACAAGATTGCCAGGGTCATTGTCTAT 2249
Db
       241 TTTGTGGCCCTGATATACATGTTCCTTGGGGTGTCCATCATTGCTGACCGCTTCATGGCA 300
Qу
           2250 TTTGTGGCCCTGATATACATGTTCCTTGGGGTGTCCATCATTGCTGACCGCTTCATGGCA 2309
Db
       301 TCTATTGAAGTCATCACCTCTCAAGAGAGGGAGGTGACAATTAAGAAACCCAATGGAGAA 360
Qу
           2310 TCTATTGAAGTCATCACCTCTCAAGAGAGGGAGGTGACAATTAAGAAACCCAATGGAGAA 2369
Db
       361 ACCAGCACAACCACTATTCGGGTCTGGAATGAAACTGTCTCCAACCTGACCCTTATGGCC 420
Qy
           2370 ACCAGCACAACAACTATTCGGGTCTGGAATGAAACTGTCTCCAACCTGACCCTTATGGCC 2429
Db
Qy
       421 CTGGGTTCCTCTGCTCCTGAGATACTCCTCTCTTTAATTGAGGTGTGTGGTCATGGGTTC 480
           Db
       2430 CTGGGTTCCTCTGCTCCTGAGATACTCCTCTCTTTAATTGAGGTGTGTGGTCATGGGTTC 2489
       481 ATTGCTGGTGATCTGGGACCTTCTACCATTGTAGGGAGTGCAGCCTTCAACATGTTCATC 540
Qу
           2490 ATTGCTGGTGATCTGGGACCTTCTACCATTGTAGGGAGTGCAGCCTTCAACATGTTCATC 2549
Dh
```

Qу	541	ATCATTGGCATCTGTGTCTACGTGATCCCAGACGGAGAGACTCGCAAGATCAAGCATCTA	600
Db	2550		2609
Qу	601	CGAGTCTTCTTCATCACCGCTGCTTGGAGTATCTTTGCCTACATCTGGCTCTATATGATT	660
Db	2610	CGAGTCTTCTTCATCACCGCTGCTTGGAGTATCTTTGCCTACATCTGGCTCTATATGATT	2669
Qу	661	CTGGCAGTCTTCTCCCCTGGTGTGGTCCAGGTTTGGGAAGGCCTCCTCACTCTTCTTC	720
Db	2670	CTGGCAGTCTTCTCCCCTGGTGTGGTCCAGGTTTGGGAAGGCCTCCTCACTCTTCTTC	2729
Qу	721	TTTCCAGTGTGTCCTTCTGGCCTGGGTGGCAGATAAACGACTGCTCTTCTACAAATAC	780
Db	2730	TTTCCAGTGTGTCCTTCTGGCCTGGGTGGCAGATAAACGACTGCTCTTCTACAAATAC	2789
Qу	781	ATGCACAAAAAGTACCGCACAGACAACACCGAGGAATTATCATAGAGACAGAGGGTGAC	840
Db	2790	ATGCACAAAAAGTACCGCACAGACAAACACCGAGGAATTATCATAGAGACAGAGGGTGAC	2849
Qу	841	CACCCTAAGGGCATTGAGATGGGAAAATGATGAATTCCCATTTTCTAGATGGGAAC	900
Db	2850	CACCCTAAGGGCATTGAGATGGGAAAATGATGAATTCCCATTTTCTAGATGGGAAC	2909
Qу	901	CTGGTGCCCCTGGAAGGGAAGGAAGTGGATGAGTCCCGCAGAGAGATGATCCGGATTCTC	960
Db	2910	CTGGTGCCCCTGGAAGGGAAGGAAGTGGATGAGTCCCGCAGAGAGATGATCCGGATTCTC	2969
Qу	961	AAGGATCTGAAGCAAAAACACCCAGAGAAGGACTTAGATCAGCTGGTGGAGATGGCCAAT	1020
Db	2970	AAGGATCTGAAGCAAAAACACCCAGAGAAGGACTTAGATCAGCTGGTGGAGATGGCCAAT	3029
Qу	1021	TACTATGCTCTTTCCCACCAACAGAAGAGCCGCGCCTTCTACCGTATCCAAGCCACTCGT	1080
Db	3030	TACTATGCTCTTTCCCACCAACAGAAGAGCCGCGCCTTCTACCGTATCCAAGCCACTCGT	3089
QУ	1081	ATGATGACTGGTGCAGGCAATATCCTGAAGAACATGCAGCAGAACAAGCCAAGAAGGCC	1140
Db	3090	ATGATGACTGGTGCAGGCAATATCCTGAAGAAACATGCAGCAGAACAAGCCAAGAAGGCC	3149
Qy	1141	TCCAGCATGAGCGAGGTGCACACCGATGAGCCTGAGGACTTTATTTCCAAGGTCTTCTTT	1200
Db	3150	TCCAGCATGAGCGAGGTGCACACCGATGAGCCTGAGGACTTTATTTCCAAGGTCTTCTTT	3209
Qy	1201	GACCCATGTTCTTACCAGTGCCTGGAGAACTGTGGGGGCTGTACTCCTGACAGTGGTGAGG	1260
Db	3210	GACCCATGTTCTTACCAGTGCCTGGAGAACTGTGGGGCTGTACTCCTGACAGTGGTGAGG	3269
Qу	1261	AAAGGGGGAGACATGTCAAAGACCATGTATGTGGACTACAAAACAGAGGATGGTTCTGCC	1320
Db	3270	AAAGGGGAGACATGTCAAAGACCATGTATGTGGACTACAAAACAGAGGATGGTTCTGCC	3329
Qу	1321	AATGCAGGGGCTGACTATGAGTTCACAGAGGGCACGGTGGTTCTGAAGCCAGGAGAGACC	1380
Db	3330		3380

```
1381 CAGAAGGAGTTCTCCGTGGGCATAATTGATGACGACATTTTTGAGGAGGATGAACACTTC 1440
Qу
           3390 CAGAAGGAGTTCTCCGTGGGCATAATTGATGACGACATTTTTGAGGAGGATGAACACTTC 3449
Db
       1441 TTTGTAAGGTTGAGCAATGTCCGCATAGAGGAGGAGCAGCCAGAGGAGGGGATGCCTCCA 1500
Qу
           3450 TTTGTAAGGTTGAGCAATGTCCGCATAGAGGAGGAGCAGCCAGAGGAGGGGGATGCCTCCA 3509
Db
       1501 GCAATATTCAACAGTCTTCCCTTGCCTCGGGCTGTCCTAGCCTCCCCTTGTGTGGCCACA 1560
Qу
           Db
       3510 GCAATATTCAACAGTCTTCCCTTGCCTCGGGCTGTCCTAGCCTCCCCTTGTGTGGCCACA 3569
       1561 GTTACCATCTTGGATGATGACCATGCAGGCATCTTCACTTTTGAATGTGATACTATTCAT 1620
Qу
           3570 GTTACCATCTTGGATGATGACCATGCAGGCATCTTCACTTTTGAATGTGATACTATTCAT 3629
Db
       1621 GTCAGTGAGAGTATTGGTGTTATGGAGGTCAAGGTTCTGCGGACATCAGGTGCCCGGGGT 1680
Qу
           3630 GTCAGTGAGAGTATTGGTGTTATGGAGGTCAAGGTTCTGCGGACATCAGGTGCCCGGGGT 3689
Dh
       1681 ACAGTCATCGTCCCCTTTAGGACAGTAGAAGGGACAGCCAAGGGTGGCGGTGAGGACTTT 1740
Qy
           3690 ACAGTCATCGTCCCCTTTAGGACAGTAGAAGGGACAGCCAAGGGTGGCGGTGAGGACTTT 3749
Db
       1741 GAAGACACATATGGGGAGTTGGAATTCAAGAATGATGAAACTGTGAAA 1788
Qу
           3750 GAAGACACATATGGGGAGTTGGAATTCAAGAATGATGAAACTGTGTAA 3797
Db
RESULT 11
US-10-054-680-3
; Sequence 3, Application US/10054680
; Publication No. US20020132998A1
; GENERAL INFORMATION:
  APPLICANT: Friddle, Carl Johan
  APPLICANT: Hilbun, Erin
  TITLE OF INVENTION: No. US20020132998Alel Human Ion Exchanger Proteins and
Polynucleotides Encoding the
  TITLE OF INVENTION: Same
  FILE REFERENCE: LEX-0301-USA
  CURRENT APPLICATION NUMBER: US/10/054,680
  CURRENT FILING DATE: 2002-01-22
  PRIOR APPLICATION NUMBER: US 60/263,384
  PRIOR FILING DATE: 2001-01-23
  NUMBER OF SEO ID NOS: 5
  SOFTWARE: FastSEQ for Windows Version 4.0
; SEO ID NO 3
   LENGTH: 1863
   TYPE: DNA
   ORGANISM: homo sapiens
US-10-054-680-3
 Query Match
                     64.5%; Score 1784.6; DB 14; Length 1863;
                     98.5%; Pred. No. 0;
 Best Local Similarity
 Matches 1813; Conservative
                           0; Mismatches
                                         24; Indels
                                                     4; Gaps
                                                               1;
```

Qу

	_		
Db	1	ATGGCGTGGTTAAGGTTGCAGCCTCTCACCTCTGCCTTCCTCCATTTTGGGCTGGTTACC	60
Qу	61	TTTGTGCTCTTCCTGAATGGTCTTCGAGCAGAGGCTGGTGGCTCAGGGGACGTGCCAAGC	120
Db	61	${\tt TTTGTGCTCTTGAATGGTCTTCGAGCAGAGGCTGGTGGCTAGGGGACGTGCCAAGC}$	120
Qу	121	ACAGGGCAGAACAATGAGTCCTGTTCAGGGTCATCGGACTGCAAGGAGGGTGTCATCCTG	180
Db	121	ACAGGGCAGAACAATGAGTCCTGTTCAGGGTCATCGGACTGCAAGGAGGGTGTCATCCTG	180
Qy .	181	${\tt CCAATCTGGTACCCGGAGAACCCTTCCCTTGGGGACAAGATTGCCAGGGTCATTGTCTAT}$	240
Db	181		240
Qу	241	TTTGTGGCCCTGATATACATGTTCCTTGGGGTGTCCATCATTGCTGACCGCTTCATGGCA	300
Db	241	TTTGTGGCCCTGATATACATGTTCCTTGGGGTGTCCATCATTGCTGACCGCTTCATGGCA	300
Qу	301	TCTATTGAAGTCATCACCTCTCAAGAGAGGGAGGTGACAATTAAGAAACCCAATGGAGAA	360
Db	301		360
Qy	361	ACCAGCACAACCACTATTCGGGTCTGGAATGAAACTGTCTCCAACCTGACCCTTATGGCC	420
Db	361	ACCAGCACACCACTATTCGGGTCTGGAATGAAACTGTCTCCAACCTGACCCTTATGGCC	420
Qy	421	CTGGGTTCCTCTGAGATACTCCTCTCTTTAATTGAGGTGTGTGGTCATGGGTTC	480
Db	421		480
Qу	481	ATTGCTGGTGATCTGGGACCTTCTACCATTGTAGGGAGTGCAGCCTTCAACATGTTCATC	540
Db	481	ATTGCTGGTGATCTGGGACCTTCTACCATTGTAGGGAGTGCAGCCTTCAACATGTTCATC	540
Qу	541	ATCATTGGCATCTGTGTCTACGTGATCCCAGACGGAGAGCTCGCAAGATCAAGCATCTA	600
Db	541	ATCATTGGCATCTGTGTCTACGTGATCCCAGACGGAGAGACTCGCAAGATCAAGCATCTA	600
Qу	601	CGAGTCTTCTTCATCACCGCTGCTTGGAGTATCTTTGCCTACATCTGGCTCTATATGATT	660
Db	601	CGAGTCTTCTTCATCACCGCTGCTTGGAGTATCTTTGCCTACATCTGGCTCTATATGATT	660
Qу	661	CTGGCAGTCTTCTCCCCTGGTGTGGTCCAGGTTTGGGAAGGCCTCCTCACTCTCTTC	720
Db	661	CTGGCAGTCTTCTCCCCTGGTGTGGTCCAGGTTTGGGAAGGCCTCCTCACTCTTCTTC	720
Qу	721	${\tt TTTCCAGTGTGTCCTTCTGGCCTGGGTGGCAGATAAACGACTGCTCTTCTACAAATAC}$	780
Db	721		780
Qу	781	ATGCACAAAAAGTACCGCACAGACAAACACCGAGGAATTATCATAGAGACAGAGGGTGAC	840
Db	781		840
Qy	841	CACCCTAAGGGCATTGAGATGGGAAAATGATGAATTCCCATTTTCTAGATGGGAAC	900

Db	841	${\tt CACCCTAAGGGCATTGAGATGGGAAAATGATGAATTCCCATTTTCTAGATGGGAAC}$	900
Qу	901	CTGGTGCCCCTGGAAGGGAAGGAAGTGGATGAGTCCCGCAGAGAGATGATCCGGATTCTC	960
Db	901	CTGGTGCCCCTGGAAGGAAGGAAGTGATGATCCCGCAGAGAGATGATCCCGGATTCTC	960
Qу	961	AAGGATCTGAAGCAAAAACACCCAGAGAAGGACTTAGATCAGCTGGTGGAGATGGCCAAT	1020
Db	961	AAGGATCTGAAGCAAAAACACCCAGAGAAGGACTTAGATCAGCTGGTGGAGATGGCCAAT	1020
Qу	1021	TACTATGCTCTTTCCCACCAACAGAAGAGCCGCGCCTTCTACCGTATCCAAGCCACTCGT	1080
Db	1021	TACTATGCTCTTTCCCACCAACAGAAGAGCCGCGCCTTCTACCGTATCCAAGCCACTCGT	1080
Qу	1081	ATGATGACTGGTGCAGGCAATATCCTGAAGAAACATGCAGCAGAACAAGCCAAGAAGGCC	1140
Db	1081	ATGATGACTGGTGCAGGCAATATCCTGAAGAAACATGCAGCAGAACAAGCCAAGAAGGCC	1140
Qy	1141	TCCAGCATGAGCGAGGTGCACACCGATGAGCCTGAGGACTTTATTTCCAAGGTCTTCTTT	1200
Db	1141	TCCAGCATGAGCGAGGTGCACCCGATGAGCCTGAGGACTTTATTTCCAAGGTCTTCTTT	1200
Qу	1201	GACCCATGTTCTTACCAGTGCCTGGAGAACTGTGGGGCTGTACTCCTGACAGTGGTGAGG	1260
Db	1201	GACCCATGTTCTTACCAGTGCCTGGAGAACTGTGGGGGCTGTACTCCTGACAGTGGTGAGG	1260
Qу	1261	AAAGGGGAGACATGTCAAAGACCATGTATGTGGACTACAAAACAGAGGATGGTTCTGCC	1320
Db	1261	AAAGGGGGAGACATGTCAAAGACCATGTATGTGGACTACAAAACAGAGGATGGTTCTGCC	1320
Qy	1321	AATGCAGGGGCTGACTATGAGTTCACAGAGGGCACGGTGGTTCTGAAGCCAGGAGAGACC	1380
Db	1321		1380
Qу	1381	CAGAAGGAGTTCTCCGTGGGCATAATTGATGACGACATTTTTGAGGAGGATGAACACTTC	1440
Db	1381	CAGAAGGAGTTCTCCGTGGGCATAATTGATGACGACATTTTTGAGGAGGATGAACACTTC	1440
Qу	1441	TTTGTAAGGTTGAGCAATGTCCGCATAGAGGAGGAGCAGCCAGAGGAGGAGGGATGCCTCCA	1500
Db	1441	TTTGTAAGGTTGAGCAATGTCCGCATAGAGGAGGAGGAGCAGCCAGAGGAGGGGATGCCTCCA	1500
Qу	1501	GCAATATTCAACAGTCTTCCCTTGCCTCGGGCTGTCCTAGCCTCCCCTTGTGTGGCCACA	1560
Db	1501	GCAATATTCAACAGTCTTCCCTTGCCTCGGGCTGTCCTAGCCTCCCCTTGTGTGGCCACA	1560
QУ	1561	GTTACCATCTTGGATGATGACCATGCAGGCATCTTCACTTTTGAATGTGATACTATTCAT	1620
Db	1561	GTTACCATCTTGGATGATGACCATGCAGGCATCTTCACTTTTGAATGTGATACTATTCAT	1620
Qу	1621	GTCAGTGAGAGTATTGGTGTTATGGAGGTCAAGGTTCTGCGGACATCAGGTGCCCGGGGT	1680
Db	1621	GTCAGTGAGAGTATTGGTGTTATGGAGGTCAAGGTTCTGCGGACATCAGGTGCCCGGGGT	1680
QУ	1681	ACAGTCATCGTCCCCTTTAGGACAGTAGAAGGGACAGCCAAGGGTGGCGGTGAGGACTTT	1740
Db	1681	ACAGTCATCGTCCCCTTTAGGACAGTAGAAGGGACAGCCAAGGGTGGCGGTGAGGACTTT	1740

```
1741 GAAGACACATATGGGGAGTTGGAATTCAAGAATGATGAAAC----TGTGAAAACCATAAG 1796
Qy
           Db
       1797 GGTTAAAATAGTAGATGAGGAGGAATACGAAAGGCAAGAGA 1837
Qу
           1 1 1 11 1 11 11 11 11 11 11 11
                             Db
       1801 GCTGACTATGGAAGAAGAGGGCCAAGAGGATAGCAGAGA 1841
RESULT 12
US-10-281-866-1
; Sequence 1, Application US/10281866
; Publication No. US20030091570A1
; GENERAL INFORMATION:
  APPLICANT: Silos-Santiago, Inmaculada
  TITLE OF INVENTION: Methods and compositions for the
  TITLE OF INVENTION: treatment and diagnosis of pain disorders using 46556
  FILE REFERENCE: MPI01-272P1RM
  CURRENT APPLICATION NUMBER: US/10/281,866
  CURRENT FILING DATE: 2002-10-28
  PRIOR APPLICATION NUMBER: 60/335,078
  PRIOR FILING DATE: 2001-10-31
  NUMBER OF SEQ ID NOS: 3
  SOFTWARE: FastSEQ for Windows Version 4.0
; SEQ ID NO 1
   LENGTH: 4282
   TYPE: DNA
   ORGANISM: Homo sapien
US-10-281-866-1
 Query Match
                    46.2%; Score 1277; DB 15; Length 4282;
 Best Local Similarity 69.1%; Pred. No. 0;
 Matches 1843; Conservative
                         0; Mismatches 775; Indels
                                                 51; Gaps
                                                           5;
       130 AACAATGAGTCCTGTTCAGGGTCATCGGACTGCAAGGAGGGTGTCATCCTGCCAATCTGG 189
Qу
                                | | | | | | | | | |
                        Db
       208 AGCACAGGGGGCTGCCAGGGGTCCTACCGCTGCCAGCCGGGGGTGCTGCCCGTGTGG 267
       190 TACCCGGAGAACCCTTCCCTTGGGGACAAGATTGCCAGGGTCATTGTCTATTTTGTGGCC 249
Qу
           Db
       268 GAGCCCGACGACCCGTCGCTGGGTGACAAGGCGGCACGGGCAGTGGTGACTTTGTGGCC 327
       250 CTGATATACATGTTCCTTGGGGTGTCCATCATTGCTGACCGCTTCATGGCATCTATTGAA 309
Qν
           328 ATGGTCTACATGTTTCTGGGAGTGTCCATCATCGCCGACCGTTTCATGGCGGCCATCGAG 387
Db
       310 GTCATCACCTCTCAAGAGAGGGAGGTGACAATTAAGAAACCCAATGGAGAAACCAGCACA 369
Qу
           388 GTCATCACGTCAAAAGAGAAGGAGATCACCATCACCAAGGCCAACGGTGAGACCAGCGTG 447
Db
       370 ACCACTATTCGGGTCTGGAATGAAACTGTCTCCAACCTGACCCTTATGGCCCTGGGTTCC 429
Qу
               448 GGCACCGTTCGCATCTGGAATGAGACGGTGTCCAACCTCACGCTCATGGCCCTGGGCTCC 507
Db
       Qу
```

Db	508	${\tt TCCGCACCTGAGATCCTGCTGTCAGTCATCGAAGTCTGCGGCCACAACTTCCAGGCGGGT}$	567
Qy	490	GATCTGGGACCTTCTACCATTGTAGGGAGTGCAGCCTTCAACATGTTCATCATCATTGGC	549
Db	568		627
Qу	550	ATCTGTGTCTACGTGATCCCAGACGGAGAGACTCGCAAGATCAAGCATCTACGAGTCTTC	609
Db	628	GTGTGCATCTACGTCATCCCAGCCGGCGAGAGCCGCAAGATCAAGCACCTGAGAGTCTTC	687
Qу	610	TTCATCACCGCTGCTTGGAGTATCTTTGCCTACATCTGGCTCTATATGATTCTGGCAGTC	669
Db	688	TTTGTCACTGCCTCTTGGAGCATCTTCGCCTATGTCTGGCTTTATCTCATCCTTGCTGTT	747
Qу	670	TTCTCCCCTGGTGTGGTCCAGGTTTGGGAAGGCCTCCTCACTCTCTTCTTCTTCCAGTG	729
Db	748	TTTTCCCCCGGTGTGGTCCAGGTGTGGGAGGCGCTGCTGACCCTGGTCTTCTTCCCGGTG	807
QУ	730	TGTGTCCTTCTGGCCTGGGTGGCAGATAAACGACTGCTCTTCTACAAATACATGCACAAA	789
Db	808	TGCGTGGTATTCGCCTGGATGGCCGACAAGCGGCTGCTCTTCTACAAGTACGTGTACAAG	867
Qy	790	AAGTACCGCACAGACAACACCGAGGAATTATCATAGAGACAGAGGGTGACCACCCTAAG	849
Db	868	CGCTACCGCACCGACGCAGCGGCATCATCATAGGCGCCGAGGGCGACCCCCGAAG	927
Qy	850	GGCATTGAGATGGGAAAATGATGAATTCCCATTTTCTAGATGGGAA	899
Db	928	AGCATCGAGCTGGACGCACGTTCGTGGGCGCCCGAGGCCCCAGGTGAGCTGGGCGGCCTG	987
Qу	900	CCTGGTGCCCCTGGAAGGGAAGGAAGTGGATGATCCCGCAGAGAGAG	957
Db	988	GGCCCGGGCCCGAGGCGCGAGCTGGACGCCAGCCGCGAGGTCATCCAGATC	1047
QУ	958	CTCAAGGATCTGAAGCAAAAACACCCAGAGAAGGACTTAGATCAGCTGGTGGAGATGGCC	1017
Db	1048	CTCAAGGACCTCAAGCAGAAGCACCCGGACAAGGATCTGGAGCAGCTGGTGGGCATCGCC	1107
QУ	1018	AATTACTATGCTCTTTCCCACCAACAGAAGAGCCGCGCCTTCTACCGTATCCAAGCCACT	1077
Db	1108	AACTACTACGCGCTGCTGCACCAGCAGAAGAGCCGCGCCTTCTACCGCATCCAGGCCACG	1167
Qу	1078	CGTATGATGACTGCAGCAGCAATATCCTGAAGAACATGCAGCAGAACAAGCCAAGAAG	1137
Db	1168	CGGCTGATGACCGGCGGGAACGTGCTGCGCAGACACGCGGCGGACGCCTCGCGCAGG	1227
Qу	1138	GCCTCCAGCATGAGCGAGGTGCACACCGATGAGCCTGAGGACTTTATTTCCAAGGTCTTC	1197
Db	1228	GCGGCGCCGGCCGAGGGCGGGGGGGGGGGGGGGGGG	1284
Qу	1198	TTTGACCCATGTTCTTACCAGTGCCTGGAGAACTGTGGGGCTGTACTCCTGACAGTGGTG	1257
Db	1285	TTCGAGCCTAGCCTCTACCACTGCCTGGAGAACTGCGGCTCCGTGCTGCTGTCCGTCACG	1344
Qу	1258	AGGAAAGGGGGAGACATGTCAAAGACCATGTATGTGGACTACAAAACAGAGGATGGTTCT	1317
Db	1345	TGCCAGGGGGGGGGGGAACAGCACCTTCTACGTGGACTACCGCACTGAGGACGGCTCT	1404

	Qy Db		GCCAATGCAGGGGCTGACTATGAGTTCACAGAGGGCACGGTGGTTCTGAAGCCAGGAGAG	
	Qy	1378	ACCCAGAAGGAGTTCTCCGTGGGCATAATTGATGACGACATTTTTGAGGAGGATGAACAC	1437
	Db	1465		1524
	Qy	1438	TTCTTTGTAAGGTTGAGCAATGTCCGCATAGAGGAGGAGCAGCCAGAGGAGGAGGGATGCCT	1497
	Db	1525		1581
	Qy -	1498	CCAGCAATATTCAACAGTCTTCCCTTGCCTCGGGCTGTCCTAGCCTCCCCTTGTGTGGCC	1557
	Db	1582	GACGGCGGCGGCCCCAAGGGGCGCTGGTGGCCCTGCTGGCC	1629
	Qу	1558	ACAGTTACCATCTTGGATGATGACCATGCAGGCATCTTCACTTTTGAATGTGATACTATT	1617
	Db	1630	ACCGTCACCATCCTGGACGACGACCACGCAGGCATCTTCTCCTTCCAGGACCGCCTGCTG	1689
	Qy	1618	CATGTCAGTGAGAGTATTGGTGTTATGGAGGTCAAGGTTCTGCGGACATCAGGTGCCCGG	1677
	Db	1690	CACGTGAGCGAGTGCATGGGCACCGTGGACGTGCGCGTCGTGCGCAGCTCGGGCGCGCC	1749
	Qy	1678	GGTACAGTCATCGTCCCCTTTAGGACAGTAGAAGGGACAGCCAAGGGTGGCGGTGAGGAC	1737
	Db	1750	GGCACCGTGCGCCTTCCCTACCGCACGGTGGACGGCACGGCGCGGCGGCGGCGGCGCGCGC	1809
	Qy	1738	TTTGAAGACACATATGGGGAGTTGGAATTCAAGAATGATGAAAACTGTGAAAACCATAAGG	1797
	Db	1810	TACGAGGACGCGTGCGGAGAGCTGGAGTTTGGCGACGAGACCATGAAAACTCTTCAG	1869
	Qy	1798	GTTAAAATAGTAGATGAGGAGGAATACGAAAGGCAAGAGAATTTCTTCATTGCCCTTGGT	1857
	Db	1870	GTGAAGATAGTTGATGACGAGGAATATGAGAAAAAGGATAATTTCTTCATTGAGCTGGGC	1929
	Qу	1858	GAACCGAAATGGATGGAACGTGGAATATCAGATGTGACAGAC	1899
	Db	1930	CAGCCCCAGTGGCTTAAGCGAGGGATTTCAGCTCTGCTACTCAATCAA	1989
	Qу	1900	AGGAAGCTGACTATGGAAGAAGAGGAGGCCAAGAGGATAGCAGAGATGGGAAAGCCAGTA	1959
	Db	1990	AGGAAGCTAACAGCCGAGGAGGAGGAGGAGGAGGAGAGAGA	2049
	Qу	1960	TTGGGTGAACACCCCAAACTAGAAGTCATCATTGAAGAGTCCTATGAGTTCAAGACTACG	2019
	Db	2050	CTTGGGGAGAACTGCCGGCTGGAGGTCATCATCGAGGAGTCATATGATTTTAAGAACACG	2109
	Qy	2020	GTGGACAAACTGATCAAGAAGACAAACCTGGCCTTGGTTGTGGGGACCCATTCCTGGAGG	2079
,	Db	2110	GTGGATAAACTCATCAAGAAAACGAACTTGGCCTTGGTAATTGGGACCCATTCATGGAGG	2169
	Qy	2080	GACCAGTTCATGGAGGCCATCACCGTCAGTGCAGCAGGGGATGAGGATGAGGATGAA	2136
	Db	2170	GAGCAGTTTTTAGAGGCAATTACGGTGAGCGCAGGGGAGGAGGAGGAGGAGGAGGAGGAGGAGGAG	2229

Qу	2137	TCCGGGGAGGAGGCTGCCCTCCTGCTTTGACTACGTCATGCACTTCCTGACTGTCTTC	2196
Db	2230	TCCCGGGAGGAGCGCTGCCGTCGTGCTTTGACTACGTGATGCACTTCCTGACGGTGTTC	2289
Qy	2197	TGGAAGGTGCTGTTTGCCTGTGTGCCCCCCACAGAGTACTGCCACGGCTGGGCCTGCTTC	2256
Db	2290	TGGAAGGTGCTCTTCGCCTGTGTGCCCCCCACCGAGTACTGCCACGGCTGGGCCTGCTTT	2349
Qy	2257	GCCGTCTCCATCATCATTGGCATGCTCACCGCCATCATTGGGGACCTGGCCTCGCAC	2316
Db	2350	GGTGTCTCCATCCTGGTCATCGGCCTGCTCACCGCCCTCATTGGGGACCTCGCCTCCCAC	2409
Qy	2317	TTCGGCTGCACCATTGGTCTCAAAGATTCAGTCACAGCTGTTGTTTTCGTGGCATTTGGC	2376
Db	2410	TTCGGCTGCACCGTTGGCCTCAAGGACTCTGTCAATGCTGTTGTCTTCGTTGCCCTGGGC	2469
Qу	2377	ACCTCTGTCCCAGATACGTTTGCCAGCAAAGCTGCTGCCCTCCAGGATGTATATGCAGAC	2436
Db	2470	ACCTCCATCCCTGACACGTTCGCCAGCAAGGTGGCGGCGCTGCAGGACCAGTGCGCCGAC	2529
Qу	2437	GCCTCCATTGGCAACGTGACGGCAGCAACGCCGTCAATGTCTTCCTGGGCATCGGCCTG	2496
Db	2530	GCGTCCATCGGCAACGTGACCGGCTCCAACGCGGTGAACGTGTTCCTTGGCCTGGGCGTC	2589
Qу	2497	GCCTGGTCCGTGCCGCCATCTACTGGGCTCTGCAGGGACAGGAGTTCCACGTGTCGGCC	2556
Db	2590	GCCTGGTCTGTGGCCGCCGTGTACTGGGCGGTGCAGGGCCGCCCCTTCGAGGTGCGCACT	2649
Qу	2557	GGCACACTGGCCTTCTCCGTCACCCTCTTCACCATCTTTGCATTTGTCTGCATCAGCGTG	2616
Db	2650	GGCACGCTGGCCTTCTCCGTCACGCTCTTCACCGTCTTCGCCTTCGTGGGCATTGCCGTG	2709
Qу	2617	CTCTTGTACCGAAGGCGGCCGCACCTGGGAGGGGAGCTTGGTGGCCCCCGTGGCTGCAAG	2676
Db	2710	CTGCTGTACCGGCGCCGCACATCGGCGGCGAGCTGGGCGGCCCGCGCGCACCCAAG	2769
Qy	2677	CTCGCCACAACATGGCTCTTTGTGAGCCTGTGGCTCCTCTACATACTCTTTGCCACACTA	2736
Db	2770	CTCGCCACCACCGCGCTCTTCCTGGGCCTCTGGCTCCTGTACATCCTCTTCGCCAGCCTG	2829
Qу	2737	GAGGCCTATTGCTACATCAAGGGGTTCTA 2765	
Db	2830	GAGGCGTACTGCCACATCCGGGGCTTCTA 2858	

## RESULT 13

US-10-281-866-3

- ; Sequence 3, Application US/10281866
- ; Publication No. US20030091570A1
- ; GENERAL INFORMATION:
- ; APPLICANT: Silos-Santiago, Inmaculada
- ; TITLE OF INVENTION: Methods and compositions for the
- ; TITLE OF INVENTION: treatment and diagnosis of pain disorders using 46556
- ; FILE REFERENCE: MPI01-272P1RM
- ; CURRENT APPLICATION NUMBER: US/10/281,866
- ; CURRENT FILING DATE: 2002-10-28
- ; PRIOR APPLICATION NUMBER: 60/335,078

```
PRIOR FILING DATE: 2001-10-31
  NUMBER OF SEQ ID NOS: 3
  SOFTWARE: FastSEQ for Windows Version 4.0
 SEQ ID NO 3
   LENGTH: 4282
   TYPE: DNA
′;
   ORGANISM: Homo sapien
   FEATURE:
   NAME/KEY: CDS
   LOCATION: (94)...(2859)
US-10-281-866-3
 Query Match
                     46.2%;
                          Score 1277; DB 15; Length 4282;
 Best Local Similarity
                    69.1%;
                           Pred. No. 0;
 Matches 1843; Conservative
                          0; Mismatches 775;
                                           Indels
                                                   51; Gaps
                                                             5;
        130 AACAATGAGTCCTGTTCAGGGTCATCGGACTGCAAGGAGGGTGTCATCCTGCCAATCTGG 189
Qу
           208 AGCACAGGGGGCTGCCAGGGGTCCTACCGCTGCCAGCCGGGGGTGCTGCCCGTGTGG 267
Db
        190 TACCCGGAGAACCCTTCCCTTGGGGACAAGATTGCCAGGGTCATTGTCTATTTTGTGGCC 249
Qу
            1 11 11 11111111
        268 GAGCCCGACGACCCGTCGCTGGGTGACAAGGCGGCACGGGCAGTGGTGTACTTTGTGGCC 327
Db
        250 CTGATATACATGTTCCTTGGGGTGTCCATCATTGCTGACCGCTTCATGGCATCTATTGAA 309
Qу
            328 ATGGTCTACATGTTTCTGGGAGTGTCCATCATCGCCGACCGTTTCATGGCGGCCATCGAG 387
Db
        310 GTCATCACCTCTCAAGAGAGGGAGGTGACAATTAAGAAACCCAATGGAGAAACCAGCACA 369
Qу
           388 GTCATCACGTCAAAAGAGAAGGAGATCACCATCACCAAGGCCAACGGTGAGACCAGCGTG 447
Db
        370 ACCACTATTCGGGTCTGGAATGAAACTGTCTCCAACCTGACCCTTATGGCCCTGGGTTCC 429
Qу
             448 GGCACCGTTCGCATCTGGAATGAGACGGTGTCCAACCTCACGCTCATGGCCCTGGGCTCC 507
Db
        430 TCTGCTCCTGAGATACTCCTCTCTTTAATTGAGGTGTGTGGTCATGGGTTCATTGCTGGT 489
Qу
           11 111
                                                 \perp
        508 TCCGCACCTGAGATCCTGCTGTCAGTCATCGAAGTCTGCGGCCACAACTTCCAGGCGGGT 567
Db
        490 GATCTGGGACCTTCTACCATTGTAGGGAGTGCAGCCTTCAACATGTTCATCATCATTGGC 549
Qу
                       11 11111 11
        568 GAGCTGGGCCCAGGCACCATCGTGGGCAGCGCTGCCTTCAACATGTTTGTGGTCATCGCC 627
Db
        550 ATCTGTGTCTACGTGATCCCAGACGGAGAGACTCGCAAGATCAAGCATCTACGAGTCTTC 609
Qу
            628 GTGTGCATCTACGTCATCCCAGCCGGCGAGAGCCGCAAGATCAAGCACCTGAGAGTCTTC 687
Db
        610 TTCATCACCGCTGCTTGGAGTATCTTTGCCTACATCTGGCTCTATATGATTCTGGCAGTC 669
Qу
              Db
        688 TTTGTCACTGCCTCTTGGAGCATCTTCGCCTATGTCTGGCTTTATCTCATCCTTGCTGTT 747
        670 TTCTCCCCTGGTGTGGTCCAGGTTTTGGGAAGGCCTCCTCACTCTTCTTCTTCTTTCCAGTG 729
Qу
           748 TTTTCCCCGGTGTGGTCCAGGTGTGGGAGGCGCTGCTGACCCTGGTCTTCTTCCCGGTG 807
Db
        730 TGTGTCCTTCTGGCCTGGGTGGCAGATAAACGACTGCTCTTCTACAAATACATGCACAAA 789
QУ
```

Db	808		867
Qу	790	AAGTACCGCACAGACAACACCGAGGAATTATCATAGAGACAGAGGGTGACCACCCTAAG	849
Db	868		927
Qу	850	GGCATTGAGATGGAAAATGATGAATTCCCATTTTCTAGATGGGAA	899
Db	928	AGCATCGAGCTGGACGCACGTTCGTGGGCGCCCGAGGCCCCAGGTGAGCTGGGCGGCCTG	987
Qy	900	CCTGGTGCCCCTGGAAGGAAGGAAGTGGATGAGTCCCGCAGAGAGATGATCCGGATT	957
Db	.988	GGCCCGGGCCCGAGGCGCGAGCTGGACGCCAGCCGCGAGGTCATCCAGATC	1047
Qy	958	CTCAAGGATCTGAAGCAAAAACACCCAGAGAAGGACTTAGATCAGCTGGTGGAGATGGCC	1017
Db	1048	CTCAAGGACCTCAAGCAGAAGCACCCGGACAAGGATCTGGAGCAGCTGGTGGGCATCGCC	1107
Qу	1018	AATTACTATGCTCTTTCCCACCAACAGAAGAGCCGCGCCTTCTACCGTATCCAAGCCACT	1077
Db	1108	AACTACTACGCGCTGCTGCACCAGCAGAAGAGCCGCGCCTTCTACCGCATCCAGGCCACG	1167
Qy	1078	CGTATGATGACTGGTGCAGGCAATATCCTGAAGAAACATGCAGCAGAACAAGCCAAGAAG	1137
Db	1168	CGGCTGATGACCGGCGCGGGAACGTGCTGCGCAGACACGCGGCGGACGCCTCGCGCAGG	1227
Qу	1138	GCCTCCAGCATGAGCGAGGTGCACACCGATGAGCCTGAGGACTTTATTTCCAAGGTCTTC	1197
Db	1228	GCGGCGCCGGCCGAGGGCGCGGCGAGGACGACGACGCCGCATCTTC	1284
Qу	1198	TTTGACCCATGTTCTTACCAGTGCCTGGAGAACTGTGGGGCTGTACTCCTGACAGTGGTG	1257
Db	1285	TTCGAGCCTAGCCTCTACCACTGCCTGGAGAACTGCGGCTCCGTGCTGCTGCTCACG	1344
QУ	1258	AGGAAAGGGGGAGACATGTCAAAGACCATGTATGTGGACTACAAAACAGAGGATGGTTCT	1317
Db	1345	TGCCAGGGCGAGGGCAACAGCACCTTCTACGTGGACTACCGCACTGAGGACGGCTCT	1404
Qу	1318	GCCAATGCAGGGGCTGACTATGAGTTCACAGAGGGCACGGTGGTTCTGAAGCCAGGAGAG	1377
Db	1405	GCCAAGGCGGGCTCCGACTACGAGTACAGCGAGGCCACGCTGGTGTTCAAACCAGGCGAG	1464
Qу	1378	ACCCAGAAGGAGTTCTCCGTGGGCATAATTGATGACGACATTTTTGAGGAGGATGAACAC	1437
Db	1465	ACGCAGAAGGAGCTGCGCATCGGCATCATCGACGACGACATCTTCGAGGAGGACGACCAT	1524
Qу	1438	TTCTTTGTAAGGTTGAGCAATGTCCGCATAGAGGAGGAGCAGCCAGAGGAGGGGGATGCCT	1497
Db	1525	TTCTTCGTGCGGCTGAACCTGCGCGTGGGCGACGCGCAGGGCATGTTCGAGCCG	1581
Qу	1498	CCAGCAATATTCAACAGTCTTCCCTTGCCTCGGGCTGTCCTAGCCTCCCCTTGTGTGGCC	1557
Db	1582	GACGGCGGCGGCGGCCCAAGGGGCGCTGCTGGCC	1629
Qу	1558	ACAGTTACCATCTTGGATGATGACCATGCAGGCATCTTCACTTTTGAATGTGATACTATT	1617

Db	1630	ACCGTCACCATCCTGGACGACGACCACGCAGGCATCTTCTCCTTCCAGGACCGCCTGCTG	1689
Qy	1618	CATGTCAGTGAGAGTATTGGTGTTATGGAGGTCAAGGTTCTGCGGACATCAGGTGCCCGG	1677
Db	1690		1749
Qу	1678	GGTACAGTCATCGTCCCCTTTAGGACAGTAGAAGGGACAGCCAAGGGTGGCGGTGAGGAC	1737
Db	1750	GGCACCGTGCGCCTTCCCTACCGCACGGTGGACGGCACGGCGCGCGC	1809
Qу	1738	TTTGAAGACACATATGGGGAGTTGGAATTCAAGAATGATGAAACTGTGAAAACCATAAGG	1797
Db	1810	TACGAGGACGCGTGCGGAGAGCTGGAGTTTGGCGACGACGAGACCATGAAAACTCTTCAG	1869
Qу	1798	GTTAAAATAGTAGATGAGGAGGAATACGAAAGGCAAGAGAATTTCTTCATTGCCCTTGGT	1857
Db	1870	GTGAAGATAGTTGATGACGAGGAATATGAGAAAAAGGATAATTTCTTCATTGAGCTGGGC	1929
Qу	1858	GAACCGAAATGGATGGAACGTGGAATATCAGATGTGACAGAC	1899
Db	1930	CAGCCCCAGTGGCTTAAGCGAGGGATTTCAGCTCTGCTACTCAATCAA	1989
QУ	1900	AGGAAGCTGACTATGGAAGAAGAGGAGGCCAAGAGGATAGCAGAGATGGGAAAGCCAGTA	1959
Db	1990	AGGAAGCTAACAGCCGAGGAGGAGGAGGAGGATAGCAGAGATGGGCAAGCCAGTT	2049
Qy	1960	TTGGGTGAACACCCCAAACTAGAAGTCATCATTGAAGAGTCCTATGAGTTCAAGACTACG	2019
Db	2050	CTTGGGGAGAACTGCCGGCTGGAGGTCATCATCGAGGAGTCATATGATTTTAAGAACACG	2109
QУ	2020	GTGGACAAACTGATCAAGAAGACAAACCTGGCCTTGGTTGTGGGGACCCATTCCTGGAGG	2079
Db	2110	GTGGATAAACTCATCAAGAAAACGAACTTGGCCTTGGTAATTGGGACCCATTCATGGAGG	2169
Qy	2080	GACCAGTTCATGGAGGCCATCACCGTCAGTGCAGCAGGGGATGAGGATGAGATGA	2136
Db	2170	GAGCAGTTTTTAGAGGCAATTACGGTGAGCGCAGGGGACGAGGAGGAGGAGGAGGACGGG	2229
QУ		TCCGGGGAGAGAGGCTGCCCTCCTGCTTTGACTACGTCATGCACTTCCTGACTGTCTTC	2196
Db		TCCCGGGAGGAGCGCTGCCGTCGTGCTTTGACTACGTGATGCACTTCCTGACGGTGTTC	2289
QУ	2197	TGGAAGGTGCTGTTTGCCTGTGTGCCCCCCACAGAGTACTGCCACGGCTGGGCCTGCTTC	2256
Db	2290	TGGAAGGTGCTCTTCGCCTGTGTGCCCCCCACCGAGTACTGCCACGGCTGGGCCTGCTTT	2349
QУ	2257	GCCGTCTCCATCCTCATCATTGGCATGCTCACCGCCATCATTGGGGACCTGGCCTCGCAC	2316
Db	2350	GGTGTCTCCATCCTGGTCATCGGCCTGCTCACCGCCCTCATTGGGGACCTCGCCTCCCAC	2409
QУ	2317	TTCGGCTGCACCATTGGTCTCAAAGATTCAGTCACAGCTGTTGTTTTCGTGGCATTTGGC	2376
Db	2410	TTCGGCTGCACCGTTGGCCTCAAGGACTCTGTCAATGCTGTTGTCTTCGTTGCCCTGGGC	2469
ДĀ	2377	ACCTCTGTCCCAGATACGTTTGCCAGCAAAGCTGCTGCCCTCCAGGATGTATATGCAGAC	2436
Db	2470	ACCTCCATCCCTGACACGTTCGCCAGCAAGGTGGCGGCGCTGCAGGACCAGTGCGCCGAC	2529

```
2437 GCCTCCATTGGCAACGTGACGGCCAGCAACGCCGTCAATGTCTTCCTGGGCATCGGCCTG 2496
Qу
           Db
       2530 GCGTCCATCGGCAACGTGACCGGCTCCAACGCGGTGAACGTGTTCCTTGGCCTGGGCGTC 2589
       2497 GCCTGGTCCGTGGCCGCCATCTACTGGGCTCTGCAGGGACAGGAGTTCCACGTGTCGGCC 2556
Qу
           111 | 111
Db
       2590 GCCTGGTCTGTGGCCGCGTGTACTGGGCGGTGCAGGGCCGCCCTTCGAGGTGCGCACT 2649
       2557 GGCACACTGGCCTTCTCCGTCACCCTCTTCACCATCTTTGCATTTGTCTGCATCAGCGTG 2616
Qy
           Db
       2650 GGCACGCTGGCCTTCTCCGTCACGCTCTTCACCGTCTTCGCCTTCGTGGGCATTGCCGTG 2709
       2617 CTCTTGTACCGAAGGCGGCCGCACCTGGGAGGGGAGCTTGGTGGCCCCCGTGGCTGCAAG 2676
Qy
             Db
       2677 CTCGCCACAACATGGCTCTTTGTGAGCCTGTGGCTCCTCTACATACTCTTTGCCACACTA 2736
Qу
           2770 CTCGCCACCGCGCTCTTCCTGGGCCTCTGGCTCCTGTACATCCTCTTCGCCAGCCTG 2829
Db
       2737 GAGGCCTATTGCTACATCAAGGGGTTCTA 2765
Qу
           2830 GAGGCGTACTGCCACATCCGGGGCTTCTA 2858
Db
RESULT 14
US-10-388-934-506
; Sequence 506, Application US/10388934
; Publication No. US20040005547A1
; GENERAL INFORMATION:
  APPLICANT: Boess, Franziska
  APPLICANT: Suter-Dick, Laura
  APPLICANT: Wolf, Detlef
  TITLE OF INVENTION: BIOMARKERS AND EXPRESSION PROFILES FOR TOXICOLOGY
  FILE REFERENCE: 21199
  CURRENT APPLICATION NUMBER: US/10/388,934
  CURRENT FILING DATE: 2003-03-14
  PRIOR APPLICATION NUMBER: 02005336.9
  PRIOR FILING DATE: 2002-03-14
  PRIOR APPLICATION NUMBER: 02015657.6
  PRIOR FILING DATE: 2002-07-17
  NUMBER OF SEQ ID NOS: 862
  SOFTWARE: PatentIn version 3.1
; SEQ ID NO 506
   LENGTH: 3004
   TYPE: DNA
   ORGANISM: Rattus norvegicus (No. US20040005547Alway rat)
US-10-388-934-506
 Query Match
                     45.9%; Score 1270.8; DB 16; Length 3004;
 Best Local Similarity
                     69.0%; Pred. No. 0;
 Matches 1835; Conservative
                          0; Mismatches 772; Indels
                                                    51; Gaps
                                                               5;
        141 CTGTTCAGGGTCATCGGACTGCAAGGAGGGTGTCATCCTGCCAATCTGGTACCCGGAGAA 200
Qу
                         \pm 1111
                                 Db
        126 CTGCCAAGGTTCCTACCGCTGCCAACCAGGGGTGCTGCTGTGTGGGAACCCGACGA 185
```

Qу	201	CCCTTCCCTTGGGGACAAGATTGCCAGGGTCATTGTCTATTTTGTGGCCCTGATATACAT	260
Db	186	CCCATCACTGGGGGACAAGGCTGCACGGGCCGTGGTGTACTTTGTGGCCATGGTCTACAT	245
Qу	261	GTTCCTTGGGGTGTCCATCATTGCTGACCGCTTCATGGCATCTATTGAAGTCATCACCTC	320
Db	246	GTTCTTGGGTCTGTCTATCATTGCTGATCGTTTTATGGCATCCATTGAGGTCATCACATC	305
Qу	321	TCAAGAGAGGGAGGTGACAATTAAGAAACCCAATGGAGAAACCAGCACAACCACTATTCG	380
Db	306	CAAGGAGAAAGAGATCACCATCACCAAGGCAAATGGGGAGACCAGCGTGGGCACTGTACG	365
Qу	381	GGTCTGGAATGAAACTGTCTCCAACCTGACCCTTATGGCCCTGGGTTCCTCTGCTCCTGA	440
Db	366	CATCTGGAATGAAACGGTGTCCAACCTTACACTCATGGCCCTGGGCTCCTCAGCACCTGA	425
Qy	441	GATACTCCTCTTTAATTGAGGTGTGTGGTCATGGGTTCATTGCTGGTGATCTGGGACC	500
Db	426	GATTCTGCTGTCATCGAGGTCTGTGGCCACAACTTCCAGGCGGGTGAGCTAGGCCC	485
Qу	501	TTCTACCATTGTAGGGAGTGCAGCCTTCAACATGTTCATCATCATTGGCATCTGTGTCTA	560
Db	486	AGGCACCATCGTGGGCAGTGCCGCCTTCAACATGTTTGTGGTCATTGCTGTGTGTG	545
Qу	561	CGTGATCCCAGACGGAGAGATCCAAGATCAAGCATCTACGAGTCTTCTTCATCACCGC	620
Db	546	TGTCATCCCGGCTGGTGAGAGCCGTAAGATCAAGCACTTAAGGGTCTTCTTCGTCACAGC	605
QУ	621	TGCTTGGAGTATCTTTGCCTACATCTGGCTCTATATGATTCTGGCAGTCTTCTCCCCTGG	680
Db	606	CTCTTGGAGCATCTTTGCCTATGTCTGGCTTTATCTCATTCTAGCAGTTTTCTCTCCAGG	665
QУ	681	TGTGGTCCAGGTTTGGGAAGGCCTCCTCACTCTCTTCTTCTTCCAGTGTGTGT	740
Db	666	CGTGGTCCAGGTGTGGGAGGCACTGCTCACGCTGGTCTTCTTCCCGGTGTGTGT	725
QУ	741	GGCCTGGGTGGCAGATAAACGACTGCTCTTCTACAAATACATGCACAAAAAGTACCGCAC	800
Db	726	CGCCTGGATGGCGGACAAGCGACTGCTCTTCTACAAGTACGTGTACAAGCGCTATCGCAC	785
QУ	801	AGACAAACACCGAGGAATTATCATAGAGACAGAGGGTGACCACCCTAAGGGCATTGAGAT	860
Db	786	CGACCCTCGCAGCGGAATCATCATCGGGGCAGAGGGAGACCCGCCCAAGAGCATCGAGCT	845
Qу	861	GGATGGGAAAATGATGAATTCCCATTTTCTAGATGGGAACCTGGTGCC	908
Db	846	GGATGGCACATTCGTGGGCACTGAGGTCCCAGGCGAGCTGGGTGCATTGGGCACAGGTCC	905
Qу	909	CCTGGAAGGAAGTGATGAGTCCCGCAGAGAGATGATCCGGATTCTCAAGGATCT	968
Db	906	CGCTGAGGCGCTGAGCTGGACGCCAGCCGGCGCGAGGTCATCCAGATTCTTAAGGACTT	965
Qy	969	GAAGCAAAACACCCAGAGAAGGACTTAGATCAGCTGGTGGAGATGGCCAATTACTATGC	
Db	966	AAAGCAGAAGCACCCGGATAAGGACCTGGAGCAGCTGGTGGGCATCGCCAAGTACTATGC	

	Qу		TCTTTCCCACCAACAGAAGAGCCGCCCTTCTACCGTATCCAAGCCACTCGTATGATGAC	
	Db	1026	ACTGCTGCACCAGCAGAAGAGCCGTGCCTTCTACCGCATCCAGGCCACGCGGCTGATGAC	1085
	QУ	1089	TGGTGCAGGCAATATCCTGAAGAAACATGCAGCAGAACAAGCCAAGAAGGCCTCCAGCAT	1148
	Db	1086	AGGTGCGGGCAACGTGCTGCCGCACACGCTGCGGATGCTGCCCGCAGGCCTGGGGC	1142
	Qy	1149	GAGCGAGGTGCACACCGATGAGCCTGAGGACTTTATTTCCAAGGTCTTCTTTGACCCATG	1208
	Db	1143	CAACGATGGTGCCCCCGATGATGAGGACGATGGTGCCAGCCGCATCTTCTTTGAGCCCAG	1202
_	QУ	1209	TTCTTACCAGTGCCTGGAGAACTGTGGGGGCTGTACTCCTGACAGTGGTGAGGAAAGGGGG	1268
	Db	1203	CCTCTACCACTGCCTGGAGAACTGCGGGTCAGTGCTGCTGTCGGTGGCTTGCCAGGGTGG	1262
	Qу	1269	AGACATGTCAAAGACCATGTATGTGGACTACAAAACAGAGGATGGTTCTGCCAATGCAGG	1328
	Db	1263	TGAGGGCAACAGCACCTTCTACGTGGATTACCGCACGGAGGATGGCTCTGCAAAGGCAGG	1322
	Qу	1329	GGCTGACTATGAGTTCACAGAGGGCACGGTGGTTCTGAAGCCAGGAGAGACCCAGAAGGA	1388
	Db	1323		1382
	Qу	1389	GTTCTCCGTGGGCATAATTGATGACGACATTTTTGAGGAGGATGAACACTTCTTTGTAAG	1448
	Db	1383		1442
	QУ	1449	GTTGAGCAATGTCCGCATAGAGGAGGAGCAGCCAGAGGAGGGGATGCCTCCAGCAATATT	1508
	Db	1443		1487
	QУ	1509	CAACAGTCTTCCCTTGCCTCGGGCTGTCCTAGCCTCCCCTTGTGTGGCCACAGTTACCAT	1568
	Db	1488	CGACGGCGGTGGGCGCCCAAGGGGCGGCTGGTGGCCACCGTCACCAT	1547
	QУ	1569	CTTGGATGATGACCATGCAGGCATCTTCACTTTTGAATGTGATACTATTCATGTCAGTGA	1628
	Db	1548	TCTGGACGACCACGCGGGCATCTTCTCCTTCCAGGACCGCCTGCTGCATGTGAGCGA	1607
	Qу	1629	GAGTATTGGTGTTATGGAGGTCAAGGTTCTGCGGACATCAGGTGCCCGGGGTACAGTCAT	1688
	Db	1608	GTGCATGGGCACCGTGGATGTGCGTGTGGCGCACCTCTGGCGCACCGTACG	1667
	QУ	1689	CGTCCCCTTTAGGACAGTAGAAGGGACAGCCAAGGGTGGCGGTGAGGACTTTGAAGACAC	1748
	Db	1668		1727
	Qy	1749	ATATGGGGAGTTGGAATTCAAGAATGATGAAAACTGTGAAAACCATAAGGGTTAAAATAGT	1808
	Db	1728		1787
	QУ	1809	AGATGAGGAGGAATACGAAAGGCAAGAGAATTTCTTCATTGCCCTTGGTGAACCGAAATG	1868
	Dlb	1788		1847
	Qу	1869	GATGGAACGTGGAATATCAGATGTGACAGACAGGAAGCTGAC	1910

Db	1848		1907
Qу	1911	TATGGAAGAAGAGGCCAAGAGGATAGCAGAGATGGGAAAGCCAGTATTGGGTGAACA	1970
Db	1908		1967
Qу	1971	CCCCAAACTAGAAGTCATCATTGAAGAGTCCTATGAGTTCAAGACTACGGTGGACAAACT	2030
Db	1968	CTGTCGCCTCGAGGTCATCGAGGAGTCTTATGACTTTAAGAATACGGTGGATAAACT	2027
Qу	2031	GATCAAGAAGACAAACCTGGCCTTGGTTGTGGGGACCCATTCCTGGAGGGACCAGTTCAT	2090
Db	2028		2087
Qу	2091	GGAGGCCATCACCGTCAGTGCAGCAGGGGATGAGGATGAGGATGAATCCGGGGAGGA	2147
Db	2088		2147
Qу	2148	GAGGCTGCCTCCTGCTTTGACTACGTCATGCACTTCCTGACTGTCTTCTGGAAGGTGCT	2207
Db	2148	GCGGCTGCCATCCTGACTTTGACTACGTGATGCACTTCCTGACGGTGTTCTGGAAAGTTCT	2207
Qу	2208	GTTTGCCTGTGTGCCCCCACAGAGTACTGCCACGGCTGGGCCTGCTTCGCCGTCTCCAT	2267
Db	2208	GTTCGCCTGCCTTCCACCCACGGAGTACTGCCATGGCTGGGCCTGCTTTGGTGTCTGCAT	2267
Qу	2268	CCTCATCATTGGCATGCTCACCGCCATCATTGGGGACCTGGCCTCGCACTTCGGCTGCAC	2327
Db	2268	CCTGGTCATTGGTCTCACTGCCCTCATCGGAGACCTGGCCTCACACTTTGGGTGCAC	2327
Qу	2328	CATTGGTCTCAAAGATTCAGTCACAGCTGTTGTTTTCGTGGCATTTGGCACCTCTGTCCC	2387
Db	2328	CGTGGGCCTCAAGGACTCAGCCGTGGTCTTCGTGGCTCTGGGCACCTCCATCCC	2387
Qу	2388	AGATACGTTTGCCAGCAAAGCTGCTGCCCTCCAGGATGTATATGCAGACGCCTCCATTGG	2447
Db	2388	TGACACGTTTGCCAGCAAGGTGGCCGCGCTGCAGGACCAGTGCGCCGACGCGTCCATCGG	2447
Qу	2448	CAACGTGACGGCCAGCAACGCCGTCAATGTCTTCCTGGGCATCGGCCTGGCCTGGTCCGT	250 <b>7</b>
Db	2448	TAACGTGACCGGCTCCAATGCGGTGAACGTGTTCCTGGGCCTGGGTGTGGCCTGGTCGGT	2507
Qу	2508	GGCCGCCATCTACTGGGCTCTGCAGGGACAGGAGTTCCACGTGTCGGCCGGC	2567
Db	2508	GGCCGCAGTGTACTGGGCGGTGCAGGGTCGCCCCTTCGAGGTGCGTACAGGCACGCTGGC	2567
Qу	2568	CTTCTCCGTCACCCTCTTCACCATCTTTGCATTTGTCTGCATCAGCGTGCTCTTGTACCG	2627
Db	2568	CTTCTCGGTCACACTGTTCACCGTCTTCGCCTTCGTGGGCATCGCAGTGCTCTTGTACCG	2627
Qу	2628	AAGGCGGCCGCACCTGGGAGGGGAGCTTGGTGGCCCCCGTGGCTGCAAGCTCGCCACAAC	2687
Db	2628	GCGCCGGCCACACATCGGCGGCGAGCTGGGCGGCCCGCGGGGACCCAAGCTAGCCACCAC	2687
Qу	2688	ATGGCTCTTTGTGAGCCTGTGGCTCCTCTACATACTCTTTGCCACACTAGAGGCCTATTG	

```
Db
       2688 CGCTCTCTTCCTGGGCCTCTGGTTCCTCTACATTCTCTTCGCCAGCCTGGAGGCTTATTG 2747
       2748 CTACATCAAGGGGTTCTA 2765
Qу
            1 1111
                  2748 CCACATTCGGGGCTTCTA 2765
Db
RESULT 15
US-09-901-419-1
; Sequence 1, Application US/09901419
; Patent No. US20020069421A1
; GENERAL INFORMATION:
  APPLICANT: The Curators of the University of Missouri
  TITLE OF INVENTION: LARGE SCALE EXPRESSION AND PURIFICATION OF RECOMBINANT
  TITLE OF INVENTION: PROTEINS
  FILE REFERENCE: UMO1531.1
  CURRENT APPLICATION NUMBER: US/09/901,419
  CURRENT FILING DATE: 2001-07-09
  PRIOR APPLICATION NUMBER: 60/218,125
  PRIOR FILING DATE: 2000-01-13
  NUMBER OF SEQ ID NOS: 2
  SOFTWARE: PatentIn Ver. 2.1
; SEO ID NO 1
   LENGTH: 4087
   TYPE: DNA
   ORGANISM: Bos taurus
   FEATURE:
   NAME/KEY: CDS
   LOCATION: (268)..(3180)
   NAME/KEY: sig peptide
   LOCATION: (268)...(363)
   NAME/KEY: misc feature
   LOCATION: (3178)
   OTHER INFORMATION: A Poly (H) affinity tag comprising 6 His residues
   OTHER INFORMATION: have been inserted at the C-Terminus end of the
   OTHER INFORMATION: coding region of the protein
US-09-901-419-1
                      44.4%; Score 1227.8; DB 9; Length 4087;
 Query Match
                      67.1%; Pred. No. 0;
 Best Local Similarity
 Matches 1935; Conservative
                            0; Mismatches 777; Indels 171; Gaps
                                                                   7;
         46 TTTGGGCTGGTTACCTTTGTGCTCTTCCTGAATGGTCTTCGAGCAGAGGCTGGTGGCTCA 105
Qy
                  11 11 1
                                           1 1
                                                - 1
Db
        307 TTTCACGTGATAGCCATGGTGGCTCTCTTGTTTTCCCATGTGGACCATATAAGTGCTGAG 366
        106 GGGGACGTGCCAAGCACAGGGCAGAACAATGAGTCCTGTTCAGGGTCATCGGACTGCAAG 165
Qy
               111 1 11 11 1
                                                         367 ACAGAAATGGAAGGAAGGCAACGAGACTGGCGAGTGTACTGGCTCCTATTACTGTAAG 426
Db
        166 GAGGGTGTCATCCTGCCAATCTGGTACCCGGAGAACCCTTCCCTTGGGGACAAGATTGCC 225
Qу
             Db
        226 AGGGTCATTGTCTATTTTGTGGCCCTGATATACATGTTCCTTGGGGTGTCCATCATTGCT 285
Qу
            487 AGAGCGACTGTGTATTTTGTGGCCATGGTCTACATGTTTCTTGGAGTCTCAATCATTGCT 546
Db
```

QУ	286	GACCGCTTCATGGCATCTATTGAAGTCATCACCTCTCAAGAGAGGGAGG	345
Db	547	GACCGGTTCATGTCCTCTATAGAAGTCATCACGTCTCAAGAGAAAAGAAATCACCATAAAG	606
Qу	346	AAACCCAATGGAGAAACCAGCACCACTATTCGGGTCTGGAATGAAACTGTCTCCAAC	405
Db	607		666
Qу	406	CTGACCCTTATGGCCCTGGGTTCCTCTGCTCCTGAGATACTCCTCTCTTTAATTGAGGTG	465
Db	667	CTGACCTTGATGGCCCTGGGGTCTTCAGCTCCAGAGATTCTCCTTTCAGTAATCGAGGTG	726
Qу	466	TGTGGTCATGGGTTCATTGCTGGTGATCTGGGACCTTCTACCATTGTAGGGAGTGCAGCC	525
Db	727	TGTGGCCATAACTTCACTGCAGGAGACCTTGGCCCCTAGCACCATCGTGGGGAGTGCTGCA	786
QУ	526	TTCAACATGTTCATCATCATTGGCATCTGTGTCTACGTGATCCCAGACGGAGAGACTCGC	585
Db	787	TTCAACATGTTCATCATCATTGCCCTTTGTGTGTATGTCGTCCCGGATGGGGAGACAAGG	846
QУ	586	AAGATCAAGCATCTACGAGTCTTCTTCATCACCGCTGCTTGGAGTATCTTTGCCTACATC	645
Db	847	AAGATCAAGCATCTGCGTGTTCTTTGTGACAGCAGCATGGAGCATCTTTGCCTATACC	906
QУ	646	TGGCTCTATATGATTCTGGCAGTCTTCTCCCCTGGTGTGGTCCAGGTTTGGGAAGGCCTC	705
Db	907	TGGCTTTACATCATTTTGTCTGTCAGCTCCCCTGGGGTCGTGGAGGTCTGGGAAGGTTTG	966
Qу	706	CTCACTCTTCTTCTTCCAGTGTGTCCTTCTGGCCTGGGTGGCAGATAAACGACTG	765
Db	967	CTTACTTCTTCTTCCCCATCTGCGTTGTGTTTGCTTGGGTGGCAGACAGGAGGCTT	1026
Qу	766	CTCTTCTACAAATACATGCACAAAAAGTACCGCACAGACAACACCGAGGAATTATCATA	825
Db	1027	CTGTTTTACAAGTATGTCTACAAGAGGTATCGGGCTGGCAAGCAGAGGGGAATGATTATT	1086
Qy	826	GAGACAGAGGGTGACCACCCTAAGGGCATTGAGATGGATAGGGAAAATGATG	876
Db	1087	GAACACGAAGGACAGGCCATCTTCCAAGACAGAAATTGAAATGGATGG	1146
Qу	877	AATTCCCATTTTCTAGATGGGAACCTGGTGCCCCTGGAAGGGAAG	921
Db	1147	AATTCCCATGTTGACAGTTTCTTAGATGGAGCCCTGGTTCTGGAGGTTGATGAGAGGGAC	1206
QУ	922	GAAGTGGATGAGTCCCGCAGAGAGATGATCCGGATTCTCAAGGATCTGAAGCAAAAA	978
Db	1207	CAAGATGATGAAGAAGCCAGGCGAGAAATGGCTAGGATTCTGAAGGAACTCAAGCAGAAG	1266
Qy	979	CACCCAGAGAAGGACTTAGATCAGCTGGTGGAGATGGCCAATTACTATGCTCTTTCCCAC	1038
Db	1267	CATCCAGAGAAGGAAATAGAGCAATTAATAGAATTAGCCAATTACCAAGTCTTAAGTCAG	1326
Qy	1039	CAACAGAAGAGCCGCCCTTCTACCGTATCCAAGCCACTCGTATGATGACTGGTGCAGGC	1098
Db	1327		1386

Qу	1099	AATATCCTGAAGAAACATGCAGCAGAACAAGCCAAGAAGGCCTCCAGCATGAGCGAGGTG	1158
Db	1387	AACATTTTAAAGAGGCATGCAGCAGCCAGGAAAGCTGTCAGCATGCAT	1446
Qy	1159	CACACCGATGAGCCTGAGGACTTTATTTCCAAGGTCTTCTTTGACCCATGTTCTTAC	1215
Db	1447	AACACGGAAGTGGCTGAAAATGACCCTGTCAGTAAGATCTTCTTTGAACAAGGGACATAT	1506
Qy	1216	CAGTGCCTGGAGAACTGTGGGGCTGTACTCCTGACAGTGGTGAGGAAAGGGGGAGACATG	1275
Db	1507	CAGTGTCTGGAGAACTGTGGCACAGTAGCCCTGACCATTATCCGCAGAGGTGGTGATTTG	1566
Qy	1276	TCAAAGACCATGTATGTGGACTACAAAACAGAGGATGGTTCTGCCAATGCAGGGGCTGAC	1335
Db	1567	ACCAACACTGTGTTTGTTGACTTCAGAACAGAGGATGGCACAGCCAATGCTGGATCTGAT	1626
Qу	1336	TATGAGTTCACAGAGGGCACGGTGGTTCTGAAGCCAGGAGAGCCCAGAAGGAGTTCTCC	1395
Db .	1627	TACGAATTTACCGAAGGAACTGTGGTCTTTAAGCCTGGTGAGACCCAGAAGGAAATCAGA	1686
Qу	1396	GTGGGCATAATTGATGACGACATTTTTGAGGAGGATGAACACTTCTTTGTAAGGTTGAGC	1455
Db	1687	GTTGGCATCATTGATGACATCTTTGAGGAGGATGAGAATTTCCTTGTGCATCTCAGC	1746
Qy	1456	AATGTCCGCATAGAGGAGGAGCAGCCAGAGGAGGGGGATGCCTCCAGCAATATTCAACAGT	1515
Db	1747	AACGTCAAAGTATCTTTGGAAGCCTCGGAAGACGGCATCCTGGAAGCCAGT	1797
Qу	1516	CTTCCCTTGCCTCGGGCTGTCCTAGCCTCCCCTTGTGTGGCCACAGTTACCATCTTGGAT	1575
Db	1798	CATGTCTCTACCCTTGCCTGGGATCCCCCTCCACTGCCACCGTGACTATTTTTGAT	1857
QУ	1576	GATGACCATGCAGGCATCTTCACTTTTGAATGTGATACTATTCATGTCAGTGAGAGTATT	1635
Db	1858	GATGACCATGCTGGCATCTTTACTTTTGAGGAACCGGTGACTCATGTGAGTGA	1917
Qу	1636	GGTGTTATGGAGGTCAAGGTTCTGCGGACATCAGGTGCCCGGGGTACAGTCATCGTCCCC	1695
Db	1918	GGCATCATGGAGGTGAAAGTTCTGAGAACATCTGGAGCACGTGGAAATGTTATCGTTCCC	1977
QУ	1696	TTTAGGACAGTAGAAGGGACAGCCAAGGGTGGCGGTGAGGACTTTGAAGACACATATGGG	1755
Db	1978	TATAAGACCATTGAGGGGACCGCCAGAGGTGGAGGGGGGGG	2037
Qу	1756	GAGTTGGAATTCAAGAATGATGAAAACTGTGAAAACCATAAGGGTTAAAATAGTAGATGAG	1815
Db	2038	GAGCTCGAGTTCCAGAATGACGAAATTGTCAAAACAATATCAGTCAAGGTAATTGATGAT	2097
Qy	1816	GAGGAATACGAAAGGCAAGAGAATTTCTTCATTGCCCTTGGTGAACCGAAATGGATGG	1873
Db		GAGGAGTATGAGAAAAACAAGACCTTCTTCCTTGAGATTGGAGAGCCCCGCCTGGTGGAG	
Qy	1874	AACGTGGAA	1882
Db		ATGAGTGAGAAGAAGCCCTGTTATTGAATGAGCTTGGTGGCTTCACAATAACAGGGAAA	
Qy	1883	TATCAGATGTGACAGACAG	1901

Db	2218	TACCTGTATGGCCAGCCTGTCTTCAGGAAAGTTCATGCTAGAGAACATCCACTCCCCTCT	2277
Qy	1902	GAAGCTGACTATGGAAGAAGAG	1923
Db	2278	ACTATAATCACCATCGCAGATGAATATGATGACAAGCAGCCACTGACCAGCAAAGAGGAG	2337
Qу	1924	GAGGCCAAGAGGATAGCAGAATGGGAAAGCCAGTATTGGGTGAACACCCCAAACTAGAA	1983
Db	2338		2397
Qу	1984	GTCATCATTGAAGAGTCCTATGAGTTCAAGACTACGGTGGACAAACTGATCAAGAAGACA	2043
Db	2398		2457
Qу	2044	AACCTGGCCTTGGTTGTGGGGACCCATTCCTGGAGGGACCAGTTCATGGAGGCCATCACC	2103
Db	2458		2517
Qу	2104	GTCAGTGCAGCAGGGATGAGGATGAGGATGAATCCGGGGAGGAGGAGGCTGCCCTCCTGC	2163
Db	2518	GTCAGTGCTGGGGAAGATGACGATGACGACGAATGTGGGGAGAAGCTGCCCTCTGT	2577
Qy	2164	TTTGACTACGTCATGCACTTCCTGACTGTCTTCTGGAAGGTGCTGTTTGCCTGTGTGCCC	2223
Db	2578	TTTGACTACGTGATGCACTTTCTGACTGTGTTCTGGAAGGTCCTCTTCGCCTTTGTCCCC	2637
Qу	2224	CCCACAGAGTACTGCCACGGCTGGGCCTGCTTCGCCGTCTCCATCCTCATCATTGGCATG	2283
Db	2638	CCGACAGAGTACTGGAACGGCTGGGCGTGTTTCATCGTCTCCATCCTCATGATCGGCCTA	2697
Qу	2284	CTCACCGCCATCATTGGGGACCTGGCCTCGCACTTCGGCTGCACCATTGGTCTCAAAGAT	2343
Db	2698	CTGACGGCTTCATTGGAGACCTCGCTTCCCACTTCGCCTGCACCATCGCCCTGAAGGAT	2757
Qу	2344	TCAGTCACAGCTGTTGTTTTCGTGGCATTTGGCACCTCTGTCCCAGATACGTTTGCCAGC	2403
Db	2758	TCCGTGACCGCGGTGTTCGTTGCGCTTGGAACCTCAGTGCCAGACACATTTGCAAGC	2817
Qу	2404	AAAGCTGCTCCCAGGATGTATATGCAGACGCCTCCATTGGCAACGTGACGGGCAGC	2463
Db	2818	AAAGTGGCCGCCACCCAGGACCAGTATGCGGATGCATCCATAGGTAACGTCACAGGCAGC	2877
Qу	2464	AACGCCGTCAATGTCTTCCTGGGCATCGGCCTGGCCTGG	2523
Db	2878	AACGCGGTGAACGTCTTCCTGGGCATCGGTGTGGCCTGGTCCATCGCCGCCATCTACCAC	2937
Qу	2524	GCTCTGCAGGGACAGGAGTTCCACGTGTCGGCCGGCACACTGGCCTTCTCCGTCACCCTC	2583
Db	2938	GCGGCCAACGGGGAACAGTTCAAAGTGTCCCCTGGCACGCTAGCTTTTTCTGTCACTCTC	2997
Qу	2584	TTCACCATCTTTGCATTTGTCTGCATCAGCGTGCTCTTGTACCGAAGGCGGCCGCACCTG	2643
Db	2998	TTCACCATTTTTGCTTTCATCAATGTGGGGGTGCTGCTGTATCGGCGGAGGCCAGAAATT	3057
Qy	2644	GGAGGGGAGCTTGGTGGCCCCCGTGGCTGCAAGCTCGCCACAACATGGCTCTTTGTGAGC	2703

Db	3058	GGAGGTGAGCTGGGTGGGCCCCGGACTGCCAAGCTCCTCACATCCTGCCTCTTTGTGCTC	3117
QУ	2704	CTGTGGCTCCTCTACATACTCTTTGCCACACTAGAGGCCTATTGCTACATCAAGGGGTTC	2763
Db	3118	CTGTGGCTCTTGTACATTTTCTTCTCCTCCCTGGAGGCCTACTGCCACATAAAAGGCTTC	3177
Qу	2764	TAA 2766	
Db	3178	TAA 3180	

Search completed: June 25, 2004, 16:08:42 Job time: 1131.99 secs